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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1893.

No. 313.

CHARLES H. MORGAN, APPELLANT,

vs.

FRED. H. DANIELS.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MASSACHUSETTS.

FILED OCTOBER 20, 1890.

(14,359.)

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INDEX.

	Original.	Print.
Caption	1	1
Bill of complaint	2	1
Answer	3	3
Replication	5	4
Stipulation as to evidence	6	4
Final decree	7	5
Order allowing appeal	9	6
Appeal bond filed and execution for costs returned satisfied	10	6
Evidence for complainant	10	7
Preliminary statement of Fred. H. Daniels	10	7
Notice to take testimony	11	8
Deposition of Fred. H. Daniels	12	9
George H. Fowler	26	22
Edmund P. Hemenway	30	24
Fred. H. Daniels (resumed)	33	26
George A. Lambert	42	33
Horace A. Young	49	38
Fred. H. Daniels (resumed)	52	41
Agreement as to drawings, &c	57	44
Letter of Fred. H. Daniels to Joseph Bedson, October 6, 1886	57	44

JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C., FEBRUARY 19, 1894.

	Original.	Print.
Letter of Fred. H. Daniels to Carl Danielson, October 6, 1886	57	45
Affidavit of Joseph Phillips Bedson, January 24, 1887	58	45
Letter of Fred. H. Daniels to Karl Angstrom, October 22, 1886	59	46
Letter of Joseph Phillips Bedson to Fred. H. Daniels, October 30, 1886	60	46
Letter of C. Danielson to Fred. H. Daniels, November 29, 1886	60	47
Letter of F. H. Daniels to Joseph P. Bedson, December 24, 1886	61	47
Memorandum from C. F. Washburn to Mr. Young, August 31, 1885	62	48
Notary's certificate	62	48
Evidence for defendant	63	48
Affidavit of Charles H. Morgan	63	49
Preliminary statement of Charles H. Morgan	63	49
Supplemental statement of Charles H. Morgan	64	50
Deposition of Daniel C. Stover	65	50
Charles H. Morgan	74	57
Philip Mauro	84	64
Charles H. Morgan (resumed)	88	68
Notice to take testimony	151	115
Deposition of George H. Scott	152	115
Wallace Metcalf	157	119
Philip L. Moen	158	120
Albert A. Barker	174	132
Charles F. Washburn	179	135
Exhibit Stover Agreement—Memorandum of agreement between Washburn & Moen Mfg. Co. and Daniel C. Stover	186	141
Exhibit Charles H. Morgan No. 1—Memorandum of agreement between Washburn & Moen Mfg. Co. and Chas. Hill Morgan, September 7, 1885	188	142
Exhibit Charles H. Morgan No. 2—Letter to Commissioner of Patents	189	142
Exhibit Charles H. Morgan No. 3—Letter to Charles H. Morgan, June 3, 1886	192	145
Exhibit Morgan Letters 1, 2, 3, and 4—Letters of Charles H. Morgan to Anthony Pollok, September 17, September 20, September 22, and September 23, 1886	194	146
Exhibit Charles H. Morgan No. 6—Order of C. H. M. to Mr. Young, February 2, 1880	198	149
Exhibit Moen—Letter of Washburn & Moen Mfg. Co. to Chas. H. Morgan, November 1, 1886	198	149
Exhibit Washburn 1—Letter of F. H. Daniels to C. F. Washburn, August, 1885	199	150
Exhibit Daniels Contract—Memorandum of an agreement between the Washburn & Moen Mfg. Co. and Fred. H. Daniels, June 17, 1885	199	150
Deposition of Carl Angstrom	201	151
Evidence for complainant in reply	211	159
Notice to take testimony, &c	211	159
Deposition of Philip L. Moen	214	161
Fred. H. Daniels	217	163
Charles F. Washburn	246	186
Dwight A. Davis	253	191

	Original.	Print.
Exhibit Lambert's Time—Statement of number of hours Geo. Lambert worked from January 1, 1870, to January 1, 1887	255	192
Exhibit Washburn Letter, May 15, 1878—Letter of the Washburn & Moen Mfg. Co. to Charles H. Morgan, May 15, 1878	256	193
Notice to take testimony	257	194
Deposition of Horace A. Young	258	195
Fred. H. Daniels (second)	261	197
Exhibit Angstrom's Letter, March 23, 1887—Letter of Carl Angstrom to F. H. Daniels, March 23, 1887	270	204
Notary's certificate	271	204
Exhibit Daniels File-wrapper and Contents—		
File-wrapper, contents, and drawing in the matter of the application of Fred. H. Daniels, filed June 26, 1886	272	205
Application	272	205
Specification	273	206
Oath	281	212
Office letter, July 30, 1886	282	212
Amendment, August 26, 1886	282	213
Office letter, September 4, 1886	284	214
Amendment, March 26, 1887	285	215
Office letter, May 13, 1889	286	216
Letter to Commissioner, May 22, 1889	287	216
Amendment, May 7, 1889	287	216
Examiner's book	288	217
Contents	289	217
Exhibit Morgan Patent No. 220,300—Patent granted Charles H. Morgan October 7, 1879	299	218
Exhibit Daelen Patent—English patent No. 4897, granted Reiner Daelen November 30, 1878	304	224
Exhibit Stover Patent No. 219,124—Patent granted D. C. Stover September 2, 1879	311	226
Patent Office decisions	313	228
Decision of examiners of interferences	313	228
Decision of examiners-in-chief	321	235
Decision of Commissioner of Patents (Hall)	325	238
Decision of Commissioner of Patents (Mitchell) on motion for rehearing	332	243
Exhibits to answer	341	247
Letters patent No. 416,940, granted Chas. H. Morgan December 10, 1889	341	247
Letters patent No. 416,941, granted Chas. H. Morgan December 10, 1889	349	251
Opinion of Judge Carpenter	353	255
Clerk's certificate	359	258
Appeal bond	361	258

1 UNITED STATES OF AMERICA, }
Massachusetts District, } ss:

At a circuit court of the United States for the first circuit, begun and holden at Boston, within and for the district of Massachusetts, on Thursday, the fifteenth day of May, in the year of our Lord one thousand eight hundred and ninety, before the Honorable Le Baron B. Colt, circuit judge.

FRED. H. DANIELS, Complainant, }
v. } No. 2684. Equity.
CHARLES H. MORGAN, Defendant. }

The bill of complaint in this cause was filed in the clerk's office on the thirtieth day of October, A. D. 1889, and was duly entered at the October term of this court, A. D. 1889, and is in the words and figures following:

2 *Bill of Complaint.*

(Filed Oct. 30, 1889.)

To the honorable the judges of the circuit court of the United States for the district of Massachusetts:

Fred. H. Daniels, of Worcester, in the county of Worcester and State of Massachusetts, and a citizen of the State of Massachusetts, brings this his bill of complaint against Charles H. Morgan, of said Worcester, and a citizen of the United States.

And thereupon your orator complains and says:

1. That your orator is the original, first and sole inventor of an improvement in machines for coiling wire or wire rods; that said improvement was not known or used by others in this country, and was not patented or described in any printed publication in this or any foreign country before your orator's invention or discovery thereof, and that it was not in public use or on sale for more than two years prior to your orator's application, hereinafter mentioned. That your orator, so being the inventor, as aforesaid, of said improvement, did, on the twenty-sixth day of June, 1886, file in the United States Patent Office an application, in due form of law, for his said invention or discovery, and duly complied with all the conditions and requirements of the then existing acts of Congress relating thereto, as will more fully appear to your honors from the copy

2a of said application, and the drawings thereto annexed, now in court produced and shown to your honors, and filed herewith as a part of this bill. That thereafter, on the fourth day of September, 1886, the Commissioner of Patents declared an interference between your orator's said application and an application filed by said Morgan on the twenty-fourth day of June, 1886; that thereafter testimony was taken in behalf of both parties to said interference, and thereafter, after proceedings had therein, the Com-

missioner of Patents, in said interference, awarded judgment of priority of invention to said Morgan, all of which will appear to your honors from the copy of the evidence and the decision of the Commissioner of Patents therein, now in court produced and shown to your honors, and filed herewith as a part of this bill.

2. Your orator avers that a rehearing was had after said decision, on or about the twenty-first day of May, 1889, and that a decision has just been made, on or about the twenty-ninth day of October current, affirming the decision above referred to; and your orator prays leave to file a copy thereof, as soon as one can be obtained.

3. Your orator avers, on information and belief, that said Morgan is not the first inventor or discoverer of the said improvement in machines for coiling wire or wire rods.

Your orator further shows that your orator will be subject to great and irreparable damage unless your honors will grant the relief hereby sought.

To the end, therefore, that the defendant may full, true, direct and perfect answer make to all and singular the matters and things hereinbefore stated and charged, as fully and particularly as if the same were hereinafter repeated and the defendant thereunto distinctly interrogated, according to the best of his knowledge, information and belief, but not under oath, which is hereby waived.

And that the defendant, and the attorneys, agents, servants and workmen of the defendant be enjoined perpetually, and also during the pendency of this suit, by writs of injunction to be issued by this honorable court, from taking any step or steps whatever to use or dispose of letters patent in this country for the said invention, or for any part thereof; and from making assignment, sale or other disposition of said letters patent, or any part thereof.

And that your honors inquire into the premises, and there-
3 upon adjudge that your orator is entitled, according to law, to receive a patent for his invention as specified in his claims, or for parts thereof, as the facts in the case may appear.

And for such other and further relief as to your honors shall seem meet.

May it please your honors to grant unto your orator not only the writs of injunction, conformable to the prayer of this bill, but also the writ of subpœna directed to said Charles H. Morgan, commanding him to appear and answer to this bill of complaint, and to do and receive what to your honors shall seem meet.

And your orator will ever pray.

FRED. H. DANIELS.

J. E. MAYNADIER, *Of Counsel.*
MAYNADIER & BEACH, *Solicitors.*

UNITED STATES OF AMERICA, }
State of Massachusetts, Suffolk, } ss:

Then personally appeared Fred. H. Daniels, above named, and made oath that he has read the foregoing bill of complaint by him subscribed; that the same is true as to the matters therein stated of

his own knowledge, and that he believes the same to be true as to the matters therein stated upon information and belief.

Before me—

[SEAL.] EDWARD S. BEACH,
Notary Public.

At the said October term the following answer, replication and stipulation were filed:

Answer.

(Filed Jan. 10, 1890.)

The answer of Charles H. Morgan, defendant in said suit, to Fred. H. Daniels, complainant.

This defendant, reserving to himself all right of exception to said bill of complaint, for answer thereto says as follows:

1. The said defendant denies that the said Daniels was the original, first and sole inventor of an improvement in machines for coiling wire or wire rods, as is alleged under the first head of
4 the bill of complaint of said complainant; but, on the contrary, the defendant avers that he is the original, first and sole inventor of the improvement in machines for coiling wire or wire rods, as will appear from letters patent granted to this defendant by the Patent Office of the United States, dated Dec. 10, 1889, and numbered severally 416,940 and 416,941, to be produced in court, and copies of which are annexed hereto and made a part of this answer.

2. This defendant, further answering, says that the inventions described in said patents were not in public use nor on sale for more than two years prior to the application for a patent for the invention or discovery thereof by this defendant.

3. This defendant, further answering, says that an interference was declared by the Commissioner of Patents between an application filed by said complainant and the aforesaid application of this defendant; and that after testimony was taken and hearings were had thereon, the Commissioner of Patents decided that this defendant was the original, first and sole inventor of the matter and things described in his application, and thereupon letters patent as aforesaid were duly granted and issued to this defendant.

4. This defendant, further answering, says as to all other matters and things set forth under the first head of the complainant's bill, that he neither admits nor denies the truth of the statements so made, but leaves the complainant to such proof thereof as he may be advised to make.

5. This defendant, further answering, says that he neither admits nor denies the averment made under the second head of the complainant's bill, but leaves him to such proof thereof as he may be advised to make.

6. This defendant, further answering, says that he has reason to believe, and does believe, and therefore avers, that he is the first

inventor or discoverer of the said improvement in machines for coiling wire or wire rods.

7. And this defendant, further answering, says that he has reason to believe, and does believe, and therefore avers, that the complainant is not entitled, according to law, to receive a patent for his alleged invention, as specified in his said claims, which were the subject of interference in the Patent Office of the United
5 States, nor for any part or parts thereof. Without this, that there is any other matter, cause or thing in the plaintiff's said bill of complaint contained, material or necessary for this defendant to make answer unto, and not herein or hereby well and sufficiently answered, confessed, traversed and avoided or denied, is true, to the knowledge and belief of this defendant: all of which matters and things this defendant is ready and willing to aver, maintain and prove as this honorable court shall direct, and prays to be hence dismissed with his reasonable costs and charges in this behalf most wrongfully sustained.

CHAS. H. MORGAN.

GEO. S. BOUTWELL,
Counsel for Defendant.

Replication.

(Filed Jan. 17, 1890.)

This repliant, saving and reserving unto himself all and all manner of advantage of exception to the manifold insufficiencies of said answer, for replication thereunto, says that he will aver and prove his said bill to be true, certain and sufficient in the law to be answered unto, and that the said answer of the defendant is untrue and insufficient to be replied unto by this repliant; without this, that any other matter or thing in the answer contained, material or effectual in the law to be answered unto, confessed and avoided, traversed or denied, is true; all which matters and things this repliant is and will be ready to aver, maintain and prove, as this honorable court shall direct, and humbly prays, as in and by his bill of complaint he has already prayed.

By his solicitors, MAYNADIER & BEACH.

6 *Stipulation.*

(Filed Feb. 3, 1890.)

It is agreed that the above-entitled suit be heard upon the testimony used by the parties in the interference proceedings in the United States Patent Office, being interference No. 10923, now on file; and all the depositions on behalf of the respective parties in those proceedings are hereby made depositions, taken and filed in this suit, and both parties rest.

Order for publication may issue at once, and the suit be set down for hearing on pleadings and proofs, as soon as the printing is completed, and ten copies sent to defendant's counsel.

It is also agreed that all the decisions in the Patent Office shall be printed in the record.

MAYNADIER & BEACH,
For Complainant.
GEO. S. BOUTWELL,
Of Counsel for C. H. Morgan.

7 This cause thereupon came on to be heard and was fully heard by the court upon the pleadings and proofs, and was argued by counsel for the respective parties, the Honorable George M. Carpenter, district judge for the district of Rhode Island, duly assigned by the Honorable Le Baron B. Colt, circuit judge, to hold this circuit court, sitting.

This cause was thence continued under advisement to this present May term, A. D. 1890, when the Honorable George M. Carpenter, district judge for the district of Rhode Island, duly assigned by the Honorable Le Baron B. Colt, circuit judge, to hold this circuit court, sitting, on the twenty-ninth day of May, the opinion of the court is announced and a decree is ordered to be entered in favor of the complainant.

On the eighteenth day of June, A. D. 1890, the following decree is entered:

Final Decree, June 18, 1890.

CARPENTER, *J.*:

This case came on to be finally heard at the October term, 1889, to wit, on the 29th and 30th days of April, 1890, upon the pleadings and proof, and was argued by counsel for the respective parties—J. E. Maynadier, Esq., of Boston, Mass., for the complainant, and Hon. George S. Boutwell, of Massachusetts, and Philip Mauro, Esq., of Washington, for the defendant; and now, upon consideration thereof, to wit, June 18th, 1890, it is ordered, adjudged, and decreed as follows, viz:

That the complainant, Fred. H. Daniels, is the original, first, and sole inventor of and is entitled according to law to receive a patent for the invention specified in the following claims, viz:

8 First. The combination, with a rod-coiling receptacle or reel, of a spider or lifting plate mounted on a central shaft, which is supported and reciprocatively movable within the reel-supporting shaft, and provided with means for elevating said central shaft and plate, substantially as and for the purpose set forth.

Second. The combination, with a rod-coiling receptacle or reel having a hollow supporting shaft carrying a frictional actuating wheel, and a lifting spider or plate having a shaft extending through and reciprocatively movable within said hollow reel-supporting shaft, of a pressure cylinder containing a hollow primary piston or plunger acting against said reel-supporting shaft, and a secondary piston or plunger acting against the shaft of said spider or plate, for the purposes set forth.

Third. The combination, with a reel or coiling receptacle and a spider or lifting plate having supporting shafts that telescope one

with the other, of a lifting mechanism comprising a pressure cylinder with primary and secondary plungers adapted for acting on the respective shafts, and a catch device for retaining said secondary plunger when in depressed position in relation to said primary plunger, for the purposes set forth.

Fourth. The combination, with the reel and its shaft and lifting spider and its shaft, of the pressure cylinder, the hollow primary plunger, the secondary plunger provided with the inclined lug *i*, the locking-lever L, fulcrummed on said primary plunger, with its end *l* extending through an opening into the primary plunger for engagement with said secondary plunger, substantially as set forth.

Fifth. The combination, with a rod-coiling receptacle or reel tub arranged to rotate with the top of its rim substantially level with a horizontal table, floor, or platform, of an elevating spider or plate disposed within said tub, and adapted for lifting the coil of wire rod to a position above the level of said floor or platform to facilitate its discharge, substantially as set forth.

Sixth. The combination of the coil receptacle B, having inwardly projecting ribs *b*, the series of pins or fingers b^2, and the lifting spider or plate C having arms that radiate across the space between said fingers and ribs, substantially as and for the purpose set forth.

In accordance with his application, filed June 26th, 1886, serial number 206,323, as amended.

And it is further ordered, adjudged, and decreed that the defendant, Charles H. Morgan, is not the original and first inventor of the said invention.

And it is further ordered, adjudged, and decreed that the complainant recover of the defendant his costs of suit, taxed at $466.69.

By the court :

ALEX. H. TROWBRIDGE,
Deputy Clerk.

From this decree the defendant in open court claims an appeal to the Supreme Court of the United States ; whereupon the following order is entered :

Order of Court, June 18, 1990.

CARPENTER, *J.* :

Ordered that the defendant's appeal herein be allowed, and ordered, as the condition of such appeal, that the defendant file a bond in the penal sum of one thousand dollars, with surety to be approved by the court, on the condition that the defendant will prosecute such appeal to effect, and if he fail to make his appeal good will pay all costs.

By the court :

JOHN G. STETSON, *Clerk.*

And thereupon the defendant files a bond conforming to the condition provided by the aforesaid order of court allowing the defendant's appeal.

An execution for costs, $466.69, in favor of complainant and against the defendant, awarded by the decree of the court June 18, 1890, and issued July 2, 1890, is returned satisfied September 3, 1890.

A true record.

Attest:

JOHN G. STETSON, *Clerk.*

The following is the evidence used at the hearing of said cause before said circuit court under the stipulation filed February 3, 1890:

Evidence for Complainant.

In the United States Patent Office.

CHARLES H. MORGAN
v.
FRED. H. DANIELS.

Interference. Mechanism for coiling wire rods.

Preliminary Statement of Fred. H. Daniels.

Fred. H. Daniels, of Worcester, in the county of Worcester and State of Massachusetts, being duly sworn, doth depose and say that he is a party to the interference declared by the Commissioner of Patents Sept. 4, 1886, between the application of Charles H. Morgan and the application of said Fred. H. Daniels for a patent for mechanism for coiling wire rods.

10*a*

That as early as January or February of the year 1878 deponent commenced to give his attention to the matter of automatic reels, or apparatus for coiling wire rods as they come from the rolling mills, and thereafter in this country, and while in Europe, devoted considerable time and study to the subject, and conceived of various methods and means for receiving and discharging the rods, in connection with the coiling devices.

That as early as April, 1878, he conversed on this subject of automatic reels with George Bedson, of Manchester, England, a prominent rolling-mill expert, and the inventor of the system whereby "continuous" rod rolling was rendered practical, a system adopted and used by the Washburn & Moen Manufacturing Company, and also with other persons. That from that time forward deponent had the subject under consideration, and conceived of and made many sketches and drawings of different and various styles of automatic reeling mechanism, among which was the particular invention in interference. That during or about the month of July, 1878, deponent made sketches of a rod-coiling apparatus, having a lifting spider on a vertically moving shaft, and at about that time disclosed the invention to other persons; that he made other sketches, and also made working drawings, showing, in detail, the construction of an apparatus embracing features such as are defined in the present issue, during or before September, 1879, and thereafter made other working drawings which were completed on or about Oct. 9,

1879, from which latter drawing an experimental machine or reel was built by the Washburn & Moen Manufacturing Company to test the practicability of the apparatus, which machine was given a trial, but was not used to any extent, as the framework and driving devices were not entirely satisfactory; that subsequently, during the year following Oct. 9, 1879, new drawings were prepared, from which patterns were made for another machine, and a machine partly constructed, but which was not completed, owing to pressure of other important and necessary work.

That during the summer of 1885 deponent was requested by Mr. Washburn, the vice-president and a director of the Washburn
11 & Moen Manufacturing Company, to have constructed for said corporation, and put into operation as soon as practically convenient, a reeling apparatus embodying the invention set forth in this issue, as involved in this interference; that work upon this apparatus was commenced and in progress at the shops of the Washburn & Moen Manufacturing Company, when, in the fall of 1885, Mr. Charles H. Morgan, the general superintendent of the works, returned from a few months absence, countermanded the order for said apparatus in the form in which it was then being built, and directed that the machines be made from new patterns embracing some modifications in the frame, and in the arrangement of the driving, stopping and starting devices, but involving the principle of the lifting spider and concentric shafts, as shown in my early drawings.

That this invention has not yet been put into practical use to any extent, beyond some experimental trials.

FRED. H. DANIELS.

Sworn to and subscribed, this second day of October, A. D. 1886, before me—

[SEAL.] CHARLES H. BURLEIGH,
Notary Public.

WORCESTER, MASS., *Feb.* 26, 1887.

In the Matter of the Interference between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN for Letters Patent for Mechanism for Coiling Wire Rods, now Pending before the Commissioner of Patents.

SIR: You are hereby notified that on Monday, March 14, 1887, at the office of the Washburn & Moen Manufacturing Company, No. 94 Grove street, Worcester, Mass., at ten o'clock in the forenoon, I shall proceed to take the testimony of Fred. H. Daniels,
12 George A. Lambert, E. P. Hemenway, Albert A. Barker, Horace A. Young, Addison B. Clemence, George H. Fowler and others, as witnesses in my behalf.

The examination will continue from day to day until completed. You are invited to attend and cross-examine.

FRED. H. DANIELS,
By his attorney, CHAS. H. BURLEIGH.

Service of the above notice acknowledged this fifth day of March, 1887.

A. POLLOK,
Attorney for Morgan.

Before the Commissioner of Patents. In the Matter of the Interference between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN for Letters Patent for Mechanism for Coiling Wire Rods.

Depositions of witnesses examined on behalf of Fred. H. Daniels, pursuant to the annexed notice, at the office of Washburn & Moen Manufacturing Company, Grove street, Worcester, Mass., on Monday, March 14, 1887.

Present: James E. Maynadier, Esq., on behalf of Fred. H. Daniels; Anthony Pollok, Esq., on behalf of Charles H. Morgan.

FRED. H. DANIELS, being duly sworn, doth depose and say in answer to interrogatories proposed to him by James E. Maynadier, Esq., counsel for Fred. H. Daniels, as follows, to wit:

Direct examination by JAMES E. MAYNADIER, of counsel for Daniels:

Int. 1. What is your name, age, residence, and occupation?

Ans. Fred. H. Daniels; thirty-three years; 130 Lincoln street, Worcester, Mass.; mechanical engineer.

12*a* Int. 2. State generally what experience you have had in the manufacture of wire, particularly how long, and where.

Ans. In the fall of 1873 I entered the employ of the Washburn & Moen Manufacturing Company, remaining with them until 1875. I then spent some twelve to eighteen months studying the chemistry of iron and steel, and was assistant during that time in the chemical laboratories of Lafayette college, Easton, Penn. In the fall of 1876 again entered the employ of the Washburn & Moen Manufacturing Company. Went to Europe in the summer of 1877, studied the manufacture of iron, steel, and wire for some ten months. Again entered the employ of the Washburn & Moen Manufacturing Company, and have been employed by them both in this country and in Europe until the present time. During all this period I have been very much interested in the manufacture of wire.

Int. 3. When did you last return from Europe?

Ans. July 1, 1878.

Int. 4. Before July 1, 1878, what attention had you given to automatic reels and apparatus for discharging them? Describe the contrivances which you had devised before that date, stating where you were when you devised them.

Ans. During January and February, 1878, I was residing in Sweden; most of the time at the Bofors iron works. I spent considerable time in their wire-rod rolling mill, and became very much interested in a plan which I had devised at that time for coiling or reeling the red-hot finished wire automatically onto a revolving

reel, having a vertical axis. I also saw the importance of devising some plan for removing the completed coil from the reel. A plan occurred to me whereby this result could be accomplished, could be brought about. The discharging device consisted of a large spider or fork, suspended from a wheel which was supported to roll on an overhead track. In order to discharge the coil, it was my plan for an attendant to introduce this spider or fork in under the coil, lift the coil vertically, clear of the pins of the reel, and remove it to the place of deposit by means of the overhead track and truck wheel. In March and April I visited all the leading rolling mills in Germany, France and England, and on the twentieth day of April, 1878, I showed a sketch of this plan of an automatic reel,
13 having a discharging fork or spider, to George Bedson, general manager of the Richard Johnson & Nephew iron works, Manchester, England. Mr. Bedson was a prominent rolling-mill expert. Mr. Bedson's son (Joseph Philips Bedson) was present during the conversation I had with his father, and saw these sketches.

(Mr. Pollok objects to the answer, in behalf of his client, so far as it may relate to any alleged invention made abroad.)

Int. 5. You used the expression "red-hot finished wire" in your last answer. Does that mean something different from a red-hot wire rod?

Ans. It does not. My plan was to place the reel close to the finishing rolls of a wire rod rolling mill, and to conduct and coil the finished wire onto the reel as rapidly as delivered by the finishing rolls of the rolling mill, avoiding thereby any overfeed of wire rod between the finishing rolls and the reel.

(Same objection by Mr. Pollok.)

Int. 6. Have you an affidavit from Mr. Bedson? If so, please produce it, as an exhibit, and explain the sketch contained in it, and state whether that sketch correctly shows your invention as it was at that time, or not.

(Objected to by Mr. Pollok.

Affidavit of Mr. Bedson produced by Mr. Daniels, and put in evidence by his counsel, and marked "Bedson's affidavit, H. E. H., N. P." Mr. Maynadier states the exhibit is not, of course, relied on as the affidavit or deposition of Mr. Bedson, but simply an exhibit in the case.)

Ans. I have received an affidavit from Joseph Philips Bedson, in which he has made a sketch illustrating the two last pairs of rolls of a continuous rolling mill, a guide-pipe for conducting the wire rod to the reel, a reel having a vertical axis, a lifter in under the completed coil of wire rod, dotted lines illustrating the lifter and coil at a position above the reel fingers, an overhead track and wheel for transporting the coil and lifter back and forth from the reel. This sketch illustrates my invention made in January or February, 1878, in Sweden.

(Objected to; same objection.)

Int. 7. To avoid confusion between the terms "wire" and
13*a* "wire rod," which you have several times used as meaning the same thing, please state what is the difference, strictly speaking, between wire and wire rod.

(Objected; same objection.)

Ans. I understand a wire rod to be a hot-roll product which can be manufactured into wire by drawing or rolling when cold.

Int. 8. How do you fix the date when you described this invention to Mr. Joseph Philips Bedson?

(Same objection.)

Ans. I arrived in New York, May 1, 1878 (from Europe). The time of passage was eight days. I went directly from Manchester to Liverpool, and the conversation took place the day before I sailed.

Int. 9. How long did you remain in this country after May 1, 1878?

(Same objection.)

Ans. Fourteen days.

Int. 10. Where did you go; how long before you returned to this country?

(Same objection.)

Ans. I sailed for Europe, and returned July 1, 1878.

Int. 11. When did you last see Mr. Joseph Philips Bedson, or his father, Mr. George Bedson?

(Same objection.)

Ans. I saw Joseph Philips Bedson in Manchester, England, during June, 1878. I saw George Bedson in this country, but cannot give the date nearer than that it was some time after 1879.

Int. 12. Is Mr. George Bedson now living? If not, when did he die, so far as you know?

(Same objection.)

Ans. He is not living. I cannot state the time of his death.

Int. 13. How was the hot wire generally reeled in Europe, prior to your return from there in July, 1878?

(Same objection, as irrelevant, immaterial, and incompetent.)

Ans. Finished wire rod was delivered from the finishing rolls and distributed in loops over a large iron floor; an attendant seized the first end of the wire rod with tongs, and introduced the end between
the spokes of a stationary reel, having a horizontal axis. The
13*b* attendant in charge of the reel applied power to turn the reel by means of a belt or independent engine, thereby pulling the wire from the floor and wrapping it in coils around the body of the reel. For removing the coil, an attendant with tongs grasped one side of the coil between the tongs, pulled it from off the reel fingers and carried it to the place of deposit.

Int. 14. What was the next plan devised by you for discharging coiled wire rod from an automatic reel, with a vertical axis?

Ans. Directly after my return from Europe, which was in July, 1878, I devised an automatic reel, having a discharging platform.

Int. 15. How at that time did you intend to operate the discharging platform?

Ans. I proposed—my plan was to mount the platform onto the upper end of a shaft, and by means of a lever and foot power raise the shaft and platform, and at the same time the completed coil on top of the platform clear of the reel fingers, or walls of the reel.

Int. 16. Did you describe this plan to any one? If so, when, and to whom?

Ans. During July, 1878, I made sketches of this plan, and showed and described the plan to George A. Lambert, of Worcester, Mass., and George H. Fowler, at that time of Providence, R. I.

Int. 17. Have you any sketches showing a reel with a platform on a shaft concentric with the reel shaft, which were made before the spring of 1879? If so, please produce all you now have showing that, and explain each one, and state when each was made.

Ans. I have four sketches illustrating a discharging platform mounted on a shaft concentric to the reel-supporting shaft. I saw that it would not be practical to operate the discharging platform by foot power. I therefore made sketches illustrating the application of hydraulic power for operating the discharging platform.

My first sketches of this application of hydraulic power for operating a discharging platform mounted on a shaft concentric with the reel-supporting shaft were made on or about Nov. 5, 1878.

One sketch was to place the hydraulic cylinder beside the reel, and, by means of a lever attached to the supporting shaft of the platform, elevate the platform and coiled wire clear of the walls of the reel.

Another sketch illustrated the hydraulic cylinder directly under the reel, with the concentric shaft supporting the platform connected direct to the hydraulic elevating and depressing piston.

Another sketch made Feb. 12, 1879, also illustrates concentric shafts for supporting discharging platform and an automatic reel. In this sketch my plan was to have the platform revolve with the automatic reel but was not designed to be raised or lowered. My idea for discharging the coil, which was supported on the platform, consisted in dropping or depressing the automatic reel to a position low enough to clear the coil of wire rod from the automatic reel.

Sketches produced and now put in evidence, with the book in which they are contained, and marked "Ex. for Daniels—Sketch 1," "Exhibit Daniels—Sketch 2," "Exhibit Daniels—Sketch 3."

Int. 18. I observe that the pieces of paper marked "Exhibit Daniels—Sketch 1" and "Exhibit Daniels—Sketch 2" are pasted onto one sheet of the blank book. When were they pasted there?

Ans. I cannot—do not know how long ago it was. It has been a long time.

Int. 19. Where was this book, when you found it for use in this controversy?

Ans. Packed away in a trunk in my house.

Int. 20. Were these sketches then pasted in it?

Ans. Yes.

Int. 21. How long had it been packed away in that trunk?

Ans. As I now remember, it has been some years.

Int. 22. How do you fix the date when these sketches marked "1" and "2" were made?

Ans. I remember distinctly of discussing with Carl Angstrom the question of automatic reels. He saw these sketches with me, and on or about the same day made a sketch of a reel which he considered superior in some respects to mine. I have that sketch, and it is dated Nov. 5, 1878.

Int. 23. How do you fix the date of the sketch marked "No. 3"?

Ans. The sketch is dated Feb. 12, 1879.

Int. 24. In whose handwriting is that date, and when was it written?

Ans. It is my own, and was written on that day.

15 Int. 25. I observe another sketch in that book, dated Jan. 18, 1879. Please explain that sketch, say when it was made, and why it is partly in ink and partly in pencil.

(The sketch is now put in evidence and marked "Exhibit Daniels Sketch 4.")

Ans. This sketch illustrates the last two pairs of rolls of a continuous rolling mill; a stationary guide-pipe for conducting the wire rod to a coiling device, consisting of a revolving pipe or conductor; the delivery end of this revolving pipe is supported by a plate, and can revolve with the plate, and can revolve in a circle with the plate at the proper speed for depositing the wire rod in coils into a non-revolvable receptacle. I also have in this sketch a central body, with radial arms or fingers attached to the bottom of this central body. The first coil of wire rod is supported on these radial arms, and the receptacle has sufficient depth so that a number of wire-rod coils or bundles of wire rod can be deposited, coil at a time, within this receptacle and around the central body. As soon as the receptacle was full it was my plan to have the receptacle, which is mounted on a car supported on rails, moved to one side, and by the means of a crane lift the central body with the bundles of wire rod out of the receptacle, and deposit the bundles at any convenient place, by unlatching the radial supports of the first coils, thus allowing the bundles to drop away from the central body. This sketch was made Jan. 18, 1879.

I do not know of any reason why the ink marks are on the drawing, without it is to render certain parts more prominent.

Int. 26. What was the next sketch or drawing relating to this matter, after the four in the book?

(Mr. Pollok objects to this and all preceding questions as irrelevant and immaterial.)

Ans. This is the drawing.

(Drawing now put in evidence and marked "Exhibit Daniels Drawing 1.")

March 14, 1887.

(Adjourned to same place, at two o'clock.)

H. E. HILL, *Master.*

16 Pursuant to the views of the above notice of adjournment, at the time and place set forth above, the same parties being present, the examination of Mr. DANIELS was continued.

Int. 27. Please state when and by whom that drawing marked "Exhibit Daniels Drawing 1" was made, and under what circumstances.

Ans. It was made by myself during or about the month of March or April, 1879. Mr. Morgan (Charles H.), the general superintendent of the Washburn & Moen Manufacturing Company, had invented some expanding tongs for removing completed coils of wire rod from an automatic reel. These tongs, after trial, were not found satisfactory, and I went to Mr. Morgan and showed him my plan of a discharging platform. He told me to go ahead and make a drawing of a reel having a platform in accordance with my plan. I went ahead and made this drawing, marked "Daniels drawing 1." After it was completed, Mr. Morgan looked it over and criticised the framework and manner of connecting the top box to the wooden frame. He made a suggestion as to how that top box should be made. This suggestion is illustrated in lead-pencil lines on this drawing, under title "Daniels drawing 1."

Int. 28. When were the expanding tongs invented by Mr. Morgan tested, referred to in your last answer?

Ans. I am unable to state accurately, but think it was during the month of March, 1879.

Int. 29. Please look at the Patent Office copy of patent No. 220,300, dated Oct. 7, 1879, application filed Jan. 22, 1879, and state whether that patent shows what you have referred to as "Mr. Morgan's expanding tongs."

(The copy is now put in evidence, marked "Exhibit Morgan Patent No. 220,300.")

Ans. Yes.

Int. 30. Were other drawings made from Exhibit Daniels Drawing 1; and if so, when and by whom, and where are they?

Ans. I made another drawing which embodied the alterations suggested by Mr. Morgan—that is, the alteration of the framework and method of fastening the same to the wooden frame of the reel.

17 This drawing was completed by myself Oct. 9, 1879, and is a complete working drawing, with dimensions. The only changes made in this drawing from those illustrated in my drawing marked "Exhibit Daniels Drawing 1" were the suggestions made by Mr. Morgan regarding the framework connecting the top box. This is the drawing; there were detail drawings made, but this is the drawing showing the machine put together.

(The drawing produced is now put in evidence and marked "Exhibit Daniels Drawing 2.")

Int. 31. Was a machine made from Exhibit Daniels Drawing 2? If so, when and where, and what was done with it?

Ans. Work was commenced at once upon an automatic reel, and one completed in strict accordance with this drawing, which is marked "Exhibit Daniels Drawing 2." This reel was built by the Washburn & Moen Manufacturing Company, and was tested in their No. 2 continuous rolling mill. The results of this test were not satisfactory, on account of certain difficulties encountered in stopping and starting the reel and discharging the finished coil of rod. The reel was finally taken out, and I made a new drawing to overcome the difficulties we had encountered (at the) during the trial of the reel. This reel was set one side, and nothing further was done with it as then constructed.

Int. 32. Where is that new drawing, and when was it completed?

Ans. The drawing which I now present I made during the fall of 1879, and it was completed during that time.

(Said drawing now put in evidence, and marked "Exhibit Daniels Drawing 3.")

Int. 33. Are there any other drawings which belong with this "Daniels Drawing 3"?

Ans. Yes; some detail drawings which I have been unable to find.

Int. 34. When did you find Exhibit Daniels Drawing 3? and state whether you had looked for it before that or not, in the place where it was properly to be found, without finding it.

Ans. I found it today in the proper drawer in the draughting-room of the Washburn & Moen Manufacturing Company.
18 I have hunted for this drawing two or three times in the draughting-room, but have been unable to find it until today.

Int. 35. Do you know who had it when you looked for it before, and who returned it to the drawer where it belonged,—where you found it today?

Ans. I do not know who had it, or where it was. Mr. Horace A. Young also tried to find the drawing in the summer of 1885, but did not succeed. I do not know who returned it.

(Counsel for Mr. Morgan requests the counsel for Mr. Daniels to instruct the witness to confine himself to statements of fact within his own knowledge. Mr. Young is noticed as one of the witnesses, and he can speak for himself.)

Int. 36. State what you know about Mr. Young's search for this drawing, including what Mr. Young said to you about the drawing at that time, but not what he has said to you since.

(Objected to, as calling for hearsay evidence.)

Ans. In August, 1885, Mr. Young had orders from the Washburn & Moen Manufacturing Company (objected to as hearsay) to complete the automatic reel, as illustrated by Exhibit Daniels Draw-

ing 3, and Mr. Young came to me and asked if I knew where that reel drawing was. He said he had been hunting for it, and could not find it. I made some sketches to show him what the plan was, and I looked over the drawers and shelves in the draughting-room and tried to find the drawing. Mr. Young was with me during a portion of the time while I was looking for the drawing.

Int. 37. To go back now to the time when Exhibit Daniels Drawing 3 and the detail drawings which went with it were made, please state what was done with these drawings.

Ans. The drawings were put into the hands of pattern-makers and mechanics, and from them patterns and castings were made and partially finished in the machine shop, with a view to apply them to the reel built from Exhibit Daniels Drawing 2, but this result was never brought about.

Int. 38. Did Mr. Charles H. Morgan resign his office or leave the employment of the Washburn & Moen Manufacturing Company some time in 1885, so far as you understand it? If so, during what time was he absent?

Ans. He did; and according to my recollection, was absent some three or four months, perhaps longer.

Int. 39. You have spoken of an order to Mr. Young to complete the reel from the Exhibit Daniels Drawing 3, and the other drawings that went with it; please state what you know about that order, including circumstances under which that order was given, and also what was done in obedience to the order.

Ans. During the month of August, 1885, Mr. Charles F. Washburn, vice-president of the Washburn & Moen Manufacturing Company, called me to his room, and went with me into this room where the hearing is being held. He asked me if I did not know of some way whereby the company could have small wire rods quickly, without waiting for the completion of E. S. Lenox's plans for rolling small wire rods by means of an intermediate hot reel. I told Mr. Washburn that I would write him a letter expressing my opinion, which I did about the middle of August, 1885. The substance of this communication was a statement that it was my belief that the company could obtain small wire rods quicker by adding two more housings to our present No. 2 continuous mill, complete and put in the partially completed automatic reel, and thereby roll Nos. 8 or 9 Washburn & Moen wire gauge wire rods. Mr. Washburn immediately called me to his room, and we had a long talk and discussion regarding this question. I told him it was the best way, in my opinion, to roll small rods. Mr. Washburn asked me how this result could be brought about. I told him to issue two orders to Mr. Horace A. Young, the master mechanic. Order 1 was for the addition of two extra pairs of rolls to the No. 2 continuous rolling mill. The other order was for two automatic reels. Mr. Washburn gave me these orders, and I put them on Mr. Young's desk. Mr. Young commenced work in accordance with these orders. Mr. Charles H. Morgan returned to the Washburn & Moen Manufacturing Company, and countermanded the order for the completion of these reels by writing "Hold" on the bottom of the order.

Int. 40. Where is that order for the reels?

Ans. I have it here.

(Order is now put in evidence, and marked "Exhibit Order.")

Int. 41. Where are the parts and pieces of the automatic
20 reel and discharging platform which were made in accordance with your drawing, Exhibit Daniels Drawing 3, and the other drawings that went with it?

Ans. The castings have been broken up and destroyed.

Int. 42. How came that?

Ans. I do not know.

Int. 43. Was it by your order, or with your knowledge or consent?

Ans. It was not.

Int. 44. What was next done, after August, 1885, about the invention in controversy?

Ans. Mr. Morgan put draughtsmen at work upon plans for two automatic reels, having discharging platforms.

Int. 45. Did you have any part in making these drawings?

Ans. I did not.

Int. 46. When were the reels from those plans completed and tested, and with what results?

Ans. I am unable to give the exact date, but think it was in the spring, or January or February, of 1886, the reels were tested in No. 2 continuous mill. I was present during the tests, but the results were not satisfactory. The reels were removed from the mill to the machine shop for alteration.

Int. 47. Please explain briefly the drawing filed with Mr. Morgan's application in interference—what the chief defects were.

Ans. The discharging platform "B" was defective, on account of the danger of individual loops dropping over and catching in under the radial arms of the platform, when said platform had delivered the completed coil above the reel fingers. Friction brake "14" was made of leather, which bore against the surface of the reel friction, on account of the burning away of the leather. Cone friction "9" for starting the reel did not work well, owing to the heavy pressure when water was applied to piston "22," imparting motion through lever "11," through cone friction "9" to the hub of driving gear "5," grinding the surface of said hub against one of the main bearings of the reel. There was one more defect: in the elevating plunger "29," due to the escape of water from the plunger cylinder, thereby wetting the driving belt.

21 Int. 48. What was done next after that?

Ans. The first reel that was built after Mr. Morgan's return in September, 1885, was driven by a "Weston's friction clutch," which differs from the "cone friction clutch" shown in Mr. Morgan's drawing for application for patents. This clutch was found defective, and a cone clutch was substituted for a Weston clutch. This reel is now in the No. 1 continuous mill, and has not been used to any extent.

Int. 49. When did Mr. Morgan attempt again to build an automatic reel, with the discharging platform?

Ans. Work was commenced shortly after these reel tests in 1886 upon another plan for stopping and starting the reel. This reel was completed and tested, but was not satisfactory. Another reel was made, where the starting and stopping was accomplished by a spring and hydraulic clutch and brake invented by Mr. Horace A. Young. This reel was completed and tested, and was found to be satisfactory, with the exception of the leakage of water from the platform-elevating piston before referred to. This reel was sent to Quinsigamond, and is now in operation in the No. 6 continuous mill. The remaining reel was altered by adopting Mr. Young's spring and hydraulic stopping and starting mechanism, and is now in successful operation in our No. 2 continuous mill. The difficulty from the leakage of water in the previous reels has been entirely overcome in the last-named reel.

Int. 50. When you say "reel," in your last answer, do you mean a single reel, or a pair working together, as shown in the drawing in the applications in interference?

Ans. I mean a pair of reels, working alternately.

Int. 51. When did you first hear or have any reason to suspect that Mr. C. H. Morgan asserted that he was the inventor, or that you was not the inventor, of the invention in controversy?

Ans. When I received the notice from the Patent Office saying that an interference had been declared between Mr. Morgan and myself.

Int. 52. Which of the sketches and drawings produced by you, if any of them, were under Mr. C. H. Morgan's control, and open to his inspection as general superintendent of the company?

22 Ans. Exhibit Daniels Drawing 1, Exhibit Daniels Drawing 2, Exhibit Daniels Drawing 3.

Int. 53. Which of the automatic reels built or partially built by the Washburn & Moen Manufacturing Company is most nearly shown in the drawings attached to your application in interference?

Ans. Exhibit Daniels Drawings 2 and 3.

Int. 54. And which is referred to in the order to Young, countermanded by Mr. C. H. Morgan, Exhibit Order?

Ans. Exhibit Daniels Drawings 2 and 3.

Int. 55. Have you ever heard or do you know any reason why automatic reels, built in accordance with the drawings of your application, in obedience to Exhibit Order, would not have worked satisfactorily?

Ans. I do not see any reason why they would not work perfectly satisfactorily.

Int. 56. Have you ever heard or do you know any reason why Mr. C. H. Morgan countermanded Exhibit Order, or why the parts built in accordance with Exhibit Daniels Drawings 2 and 3, and in obedience to Exhibit Order, were destroyed?

Ans. I do not know any reason why the order should have been countermanded, and I do not understand why the reels should have

been broken up. They had cost considerable time and money, and it was my opinion that they should have been completed and tested.

Int. 57. How long a time would it have taken, after the date of Exhibit Order, to complete and test these reels?

Ans. Inside of four weeks.

Int. 58. Do you know when Mr. Morgan countermanded that order?

Ans. I do not.

Cross-examination by Mr. POLLOK, attorney for Morgan:

Cross-int. 59. How long have you known Mr. Morgan?

Ans. Personally, I have known him about fourteen years. I was introduced to him about fourteen years ago, but I don't remember by whom.

Cross-int. 60. You remember the time and the fact that you were introduced, but I understand you that you do not remember by whom. Is that so?

Ans. I do not remember the time exactly. It was about fourteen years ago.

Cross-int. 61. What was the occasion of your introduction?

Ans. I do not recollect.

Cross-int. 62. What were you doing at the time when you were introduced to Mr. Morgan?

Ans. I do not know.

Cross-int. 63. Were you not a schoolboy then?

Ans. No, I was a young man.

Cross-int. 64. Did you go to any school at that time?

Ans. Yes.

Cross-int. 65. Well, go on. What school?

Ans. Worcester Free Institute of Industrial Science.

Cross-int. 66. From what time to what time were you at that school?

Ans. I entered in 1869, and graduated in the summer of 1873.

Cross-int. 67. From 1869 to 1873 did you not frequently see Mr. Morgan at the school?

Ans. Yes.

Cross-int. 68. He was then and is now one of the trustees of that institution, was and is he not?

Ans. Yes.

Cross-int. 69. Did he not during that time manifest a personal interest in you?

Ans. I do not recollect that he did.

Cross-int. 70. Did he ever manifest any interest in you?

Ans. Yes, I think he did, and was well pleased with my services.

Cross-int. 71. After you left school in 1873, what did you do?

Ans. I entered the employ of the Washburn & Moen Manufacturing Company, as a draughtsman.

Cross-int. 72. Who got you the position?

Ans. Mr. Milton P. Higgins, superintendent of the Washburn machine shop, told me one time that he had spoken very highly of

my ability to Mr. Morgan, and I have reason to believe that
24 Professor Thompson, principal of the institute at that time, was also favorably impressed regarding my capacity.

Cross-int. 73. Will you please answer the previous question?

Ans. I do not know. I received a letter from Mr. Morgan, saying that the Washburn & Moen Manufacturing Company would employ me as a draughtsman, and wished me to come at once.

Cross-int. 74. Did not Mr. Morgan employ you also, if not exclusively, out of friendly consideration for your father?

Ans. I never knew that he did. I asked Mr. Morgan if he knew of any concern who needed a draughtsman, and in the course of a few days I received his letter, saying that the company would employ me as a draughtsman.

Cross-int. 75. Beyond what you learned at school, you had no experience as a draughtsman?

Ans. No, sir; but when I graduated I was considered a competent draughtsman, and my thesis drawings were marked "No. 1."

Cross-int. 76. You have stated in your second answer that you left the Washburn & Moen Manufacturing Company in 1875. What was the occasion of your leaving them?

Ans. Business was rather slack in the draughting department, and I thought it would be of advantage for me to become more familiar with the chemistry of iron and steel. I had some talk with Mr. Morgan regarding this matter, and either Mr. Morgan or Professor Thompson gave me a letter of introduction to Thomas M. Drown, of Lafayette college, Easton, Penn. I went out and saw Dr. Drown, and he employed me as his assistant in chemistry in Lafayette college, including opportunities to attend all lectures and recitations and free use of chemicals and apparatus.

Cross-int. 77. Did not Mr. Morgan personally go to Dr. Drown in your behalf, and interest him in your case, and get you the position you have just described as a paid assistant, but in fact to study the chemistry of iron and steel?

Ans. I do not remember that he did. He might have, because he was acquainted with Dr. Drown. The position as assistant in chemistry at Lafayette college had always included, from the building of Pardee hall, where the laboratories were located, free use of chemicals and apparatus, and was a salaried position.

25 Cross-int. 78. Did you not know that Mr. Morgan went twice to Easton to see Dr. Drown in relation to your employment there?

Ans. I did not know that Mr. Morgan had any conversation with Dr. Drown regarding my employment there. I knew that Mr. Morgan was in the habit of going to Bethlehem, and he had told me of stopping off at Lafayette college, at Easton, which is on the road to Bethlehem.

Cross-int. 79. Did he tell you what his object was in stopping at Lafayette college?

Ans. I do not remember.

Cross-int. 80. How did Dr. Drown know of you, and how did you come to be employed by him?

Ans. As I have before stated, I carried with me a letter of introduction to Dr. Drown.

Cross-int. 81. When you carried the letter of introduction, had not the position been promised to you?

Ans. I think not.

Cross-int. 82. What makes you think so?

Ans. My remembrance of the conversation I had with Dr. Drown did not indicate that he had any such understanding.

Cross-int. 83. What in his conversation with you then makes you think now that there was no understanding on his part that you should be employed by him as an assistant?

(Objected to as a mere waste of time, and counsel for Daniels respectfully suggest to the counsel for Morgan that he come to the case.)

Ans. Because I was not hired on the spot. Dr. Drown asked me a great many questions regarding what I knew about chemistry and chemical laboratories, and I judged from the talk we had that it was a question whether I should obtain the position or not. After my return home, Dr. Drown wrote me a letter, in which he stated in substance that he would try me in the position during the last term of the school year, A. D. 1875, at a salary.

Cross-int. 84. Did not Mr. Morgan take you back again into the employ of the Washburn & Moen Manufacturing Company in 1876?

26 Ans. I entered the employ of the Washburn & Moen Manufacturing Company in the fall of 1876. I received an offer from Mr. Morgan, the general superintendent of the Washburn & Moen Manufacturing Company, to return to them as a chemist.

Cross-int. 85. Then you had charge of the chemical laboratory of the company?

Ans. I did.

Cross-int. 86. For what length of time?

Ans. Until July 18, 1877.

Cross-int. 87. Why did you leave the employ of the company at that time, if you left it at all?

Ans. Because Mr. Morgan came to me, and said substantially as follows: That he proposed to spend three months in Europe; that he was not well and would like to have me accompany him; that he would like to pay all my expenses, but did not feel that he could quite, but offered to buy me a ticket over and back. I was pleased to go with him, and left the employ of the company and accepted his proposition.

Cross-int. 88. You have stated that after ten months in Europe you again entered the employ of the Washburn & Moen Manufacturing Company. At whose instance were you so employed?

Ans. I received a letter from Mr. Morgan, stating in substance that the company were about to build additional rolling mills, and that he would like to have me return, and I returned.

(Adjourned to same place, 9.30 a. m., March 15, 1887.)

H. E. HILL,
Notary Public.

WORCESTER, *March* 15.

At the time and place set forth in the above notice of adjournment, the above parties being present, the direct examination of George H. Fowler, a witness summoned on behalf of Daniels, was commenced.

GEORGE H. FOWLER, being duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogations propounded by Mr. Maynadier, doth depose and say:

Int. 1. What is your name, age, residence, and occupation?

27 Ans. George H. Fowler; I am thirty-four years; I am treasurer of Pawtucket Manufacturing Company; I reside in Pawtucket.

Int. 2. Do you know Mr. Fred. H. Daniels? If so, how long have you known him?

Ans. Yes, sir; since spring of 1870.

Int. 3. Have you any means of telling when you first saw him, after his return from Europe? If so, when was it? and state the substance of all that he said, if anything, as to any new plans of rolling wire rods.

Ans. Yes, sir. I have a diary memorandum, showing that he came to see me the 20th of July, 1878. He explained by rough sketches an arrangement he had for coiling the wire after it was delivered from the rolls, which was a round box mounted on an upright shaft, and in the bottom of the box was a plate, perhaps I should say a movable plate, which could be lifted for the purpose of raising the coil of wire. That was his method of getting hold of the coil, to get it out of the box.

Int. 4. Where was your talk about this?

Ans. That was at my boarding-house. That was in Providence, where I lived at the time.

Int. 5. When was this talk, and how do you fix the date?

Ans. I fix the date by the diary memorandum at the time he came down to see me, the 20th of July,—yes, sir, '78.

Int. 6. Please read the entries in your diary which relate to that visit, or let the magistrate copy them.

Ans. That is the first one.

"Sat. 20. Daniels came at 8.30 p. m."

"Sun. 21. Go to Newport with Daniels; take dinner at Ocean House; go to Park Garden in evening."

Int. 7. Do you know when you next saw Daniels, after that?

Ans. Not after that visit; of course he stayed Sunday night and left Monday morning, but after that I don't remember when I saw him.

Cross-examination by Mr. POLLOK:

Cross-int. 8. Did you see Mr. Daniels, after that visit of his to Providence, in July, 1878?

Ans. No, sir.

28 Cross-int. 9. Didn't you see him last night?

Ans. Yes, sir.

Cross-int. 10. Was that the first time you saw him since '78?

Ans. No, sir.

Cross-int. 11. When and where did you see him?

Ans. About a year ago I was up here, and saw Daniels on the street driving in his buggy, but he didn't see me. And I saw him again something like two weeks ago; he called on me at Pawtucket.

Cross-int. 12. Didn't you see him in '79?

Ans. I couldn't say whether I did or not, sir.

Cross-int. 13. Did you see him in 1880?

Ans. I have no means of saying that I did.

Cross-int. 14. Do you mean to say that you have no present recollection of seeing him, or do you wish to be understood that you had no means of ascertaining?

Ans. I have no present means of stating that I did see him on those dates. I may have diary memorandum that would show that I did.

Cross-int. 15. Did you look through your diary memorandum of 1879, to ascertain whether you had not seen Mr. Daniels through that year?

Ans. No, sir; I did not.

Cross-int. 16. Did you look through your diaries of 1880, 1881, '82, '83, '84, '85, '86 and '87, to ascertain whether or not you had seen Mr. Daniels at any other time than July 20, 1878?

Ans. No, sir.

Cross-int. 17. But you have no recollection of having seen Mr. Daniels, after the visit you have detailed in July, '78, except when you saw him in the street about a year ago, and when he called on you at Pawtucket two weeks ago?

Ans. Those are the only two that I positively remember, *i. e.*, remember the circumstances. I think there is no doubt but that I did see him between those dates, but do not recall any such.

Cross-int. 18. Is this the first time that you have come to the Washburn & Moen Manufacturing Company's works?

Ans. No, sir.

29 Cross-int. 19. State when you came to this place before, and how often, and on what occasions, and for what business.

Ans. I can't tell how many. I can't tell the dates that I went there. I have called on Daniels occasionally when I have been in Worcester. My business was simply a social nature.

Cross-int. 20. Can't you approximate the times you have called on him at the works in Worcester?

Ans. I should say half a dozen times.

Cross-int. 21. In what years?

Ans. I couldn't place the years.

Cross-int. 22. Were these visits within the last five or six years?

Ans. I should say within eight years would be nearer.

Cross-int. 23. Have you any objection to my examining your diary from which the magistrate copied the entries you indicated?

Ans. No, sir; I don't think I have.

Cross-int. 24. What is the Pawtucket Manufacturing Company's business?

Ans. To manufacture bolts, nuts,—bolt and nut machinery.

Cross-int 25. When did you enter its employ?

Ans. The arrangements were made or work begun on the works December,—about Dec. 1, '81. We were incorporated as a company, May, 1882.

Cross-int. 26. Did Mr. Daniels ever talk with you on the subject of the device you say he had described to you on the twentieth day of July, 1878, since then? And if so, state when and where.

Ans. I don't remember any other time, except when he called on me about two weeks ago.

(Mr. Pollok, counsel, here closes his cross-examination.)

Redirect:

Int. 27. When did you cease to reside in Worcester?

(Objected to, as assuming what is not known, to wit, that the witness ever resided in Worcester.)

Ans. 'Twas after I graduated, in July, 1873. I graduated at the Technical school. Perhaps I will say, then, after the graduating exercises. I packed up as soon as I could, and got home.

Int. 28. Where did you then reside?

30 Ans. At Barre, Mass., with my parents.

Int. 29. How long have you resided in Pawtucket?

Ans. I moved from Providence to Pawtucket, I think, in October of 1881.

Int. 30. How long did you live at Providence?

Ans. I commenced work at Providence 17th of March, '74. I went there a day or two earlier. I lived there until I moved to Pawtucket.

GEORGE H. FOWLER.

Edmund P. Hemenway, summoned as a witness in behalf of Daniels, having been sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded by Mr. Maynadier, counsel for Daniels, doth depose and say:

Int. 1. What is your name, age, residence, and occupation?

Ans. Edmund P. Hemenway; forty years; New York city; assistant superintendent of the De La Vergne Refrigerating Machine Company, 157 Bank street.

Int. 2. Do you know Mr. Fred. H. Daniels? If so, how long have you known him?

Ans. Yes; I have known him since Oct. 31, 1878.

Int. 3. How do you fix that date?

Ans. By recollection of mind—but more especially from entry in my diary of that year and date.

Int. 4. What was your business at that time, and where?

Ans. Draughtsman. I began on that date as draughtsman for Washburn & Moen. Entered their employ as such.

Int. 5. Did Daniels talk with you in regard to wire-rod rolling? If so, when first, and state the substance of the conversation.

Ans. Not directly on wire rolling. He did once concerning a reel for coiling rods as they came from a rolling mill. The date of the conversation I cannot positively fix, but it was some time during the cold weather following Jan. 1, 1879. The conversation occurred in this wise: As I was one day at my table, at work on some, as it now occurs to me, minor matter, he came over across the room to me and with a pencil and small piece of brown paper began speaking about coiling rods as they came from a rolling mill.

31 The principal point that he had in mind at the time was concerning the proper speed to have the reel run, and the main speed of the coil. Incidentally he spoke of and partially sketched a device for coiling the rods, consisting essentially of a tub or cheese box made to revolve in a horizontal plane, and having on the inside thereof a sort of flat fork or spider, on top of which the rod would coil, and after the rod was coiled and complete in the tub the spider was by some means lifted, thereby elevating the coil of rod up to the top of the tub, and in position to be readily removed by proper tongs, by a man stationed nearby for the purpose.

Int. 6. What is your recollection as to how this spider was supported, and raised and lowered?

Ans. Well, I haven't any definite recollection as to that part of it at all.

Int. 7. Did you have anything to do with making working drawings as to that same matter?

Ans. To the best of my knowledge and belief, no.

Int. 8. Do you recollect anything as to such drawings having been made in the spring and summer of '79?

Ans. Nothing definitely or specifically.

Int. 9. Please look at the drawing marked "Exhibit Daniels Drawing 1," and state whether you see in that anything which refreshes your recollection in relation to what Daniels described and explained to you in January, '79?

Ans. As to its being specifically January, I cannot say. The drawing showing the tub and spider is confirmatory of my recollection of Daniels's description and idea; further than that, though, I cannot say. There is nothing about the remainder of the drawing that calls to mind any definite recollection whatever.

Int. 10. Did you ever see that drawing before?

Ans. I don't know whether I ever did or not.

Int. 11. What was Daniels's position when you first entered the employ of Washburn & Moen?

Ans. I understood him to be head draughtsman.

Int. 12. Now please state the date or dates when this conversation about the reel and spider took place, as near as you can.

Ans. Some time during the cold weather following Jan. 1, 1879.

32 Cross-examination by Mr. POLLOK:

Cross-int. 13. Please state how long you were in the employ of the Washburn & Moen Manufacturing Company.

Ans. About twenty months.

Cross-int. 14. During that time you were mostly engaged in the draughtsmen's department, were you not?

Ans. Yes, sir.

Cross-int. 15. Will you please state how many persons there were employed in that department during that time?

Ans. Half a dozen—about.

Cross-int. 16. Do you know Mr. Morgan, Charles H. Morgan, general superintendent of the Washburn & Moen Manufacturing Company; and if so, did you meet him while you were in the employ of the company, and where, and how frequently?

Ans. Yes, I do know him. I met him while I was in the employ of the company, everywhere about the works, almost everywhere about the works, oftentimes at most unexpected times and places, one to more times per day.

Cross-int. 17. Was not Mr. Morgan a frequent visitor at the draughtsmen's room? Will you kindly state what were his habits in his intercourse with the employees in that department?

Ans. I considered his visits frequent. He usually came in between 8:30 and 9:30 in the morning, and looked in a general way about the room, and oftentimes would spend from half an hour to more time with Mr. Daniels at his table. Sometimes he would look particularly at the work of some other draughtsman, but that was not common. Sometimes he would drop in in the afternoon also.

Cross-int. 18. Was or was not the draughtsmen's room under the general management and direction of Mr. Morgan?

Ans. I always supposed it was, and considered it so.

Cross-int. 19. Did not Mr. Morgan prepare sketches or bring sketches to the draughtsmen's room, and give the draughtsmen under his charge instructions what to do?

Ans. I think he did sometimes bring sketches, but cannot specify any particular instances. He often did give instructions directly, and specific directions, as I know in my own case. I think
33 he gave them to others as much as to me, but of course cannot say positively.

Cross-int. 20. Were not drawings which Mr. Daniels made in the draughtsmen's room of the Washburn & Moen Manufacturing Company made by direction of Mr. Morgan, and under his supervision?

Ans. I always supposed they were.

EDMUND P. HEMENWAY.

Deposition of FRED. H. DANIELS resumed:

Cross-int. 89. If I understood your deposition in chief or direct, you remained only, I think, a fortnight in the country in order again to return to Europe. Will you state now at whose instance you went back to Europe, and for what purpose?

Ans. I did not remain a fortnight in order to return to Europe, for I did not know that I was to return until two days before I sailed. Mr. Charles F. Washburn, vice-president of the Washburn

& Moen Manufacturing Company, called me to his office and told me that the company wished me to go to Europe, and join Mr. Morgan, and see and learn all I could regarding roller mills. He also said that four eyes were better than two, and wished me to circulate as much as possible among the mills of Europe, for information.

Cross-int. 90. Did not Mr. Washburn tell you that it was in compliance with an urgent request of Mr. Morgan that he consented that you should follow Mr. Morgan, in order to assist him and do anything he might require of you, or something to that effect?

Ans. He did not, and I never received such instructions.

Cross-int. 91. Did you not know, and were you not informed, and do not you believe that was the case?

Ans. I did not. I have since been informed by one party that such was the case, and by another party that such was not the case. I do not know which was the case.

Cross-int. 92. Name the parties referred to in your last answer.

34 Ans. Charles H. Morgan, Charles F. Washburn.

Cross-int. 93. Do you mean to say that Mr. Washburn told you that it was not true, what no doubt Mr. Morgan told you, viz., that he, Mr. Morgan, requested him, Mr. Washburn, to send you immediately to Europe by next steamer, to follow him, to assist him in his investigations?

Ans. Mr. Washburn did not contradict Mr. Morgan. He simply told me that it was by his, Mr. Washburn's, suggestion, that I went.

Cross-int. 94. While in Europe, were you not constantly with Mr. Morgan, living at the same hotel, eating at the same table, engaged in the same work, exchanging ideas and appreciations, and did you not return with him in the same steamer?

Ans. During what period of time?

(Mr. Polluk replies, "You may answer as you please.")

During my last trip to Europe I was; after I met Mr. Morgan in Paris.

Cross-int. 95. How soon after you arrived in Europe did you meet Mr. Morgan in Paris?

Ans. Inside of two days.

Cross-int. 96. When did you sail, and when did you arrive?

Ans. I think, May 15, 1878; and I arrived in Liverpool, May 28.

Cross-int. 97. What were your relations with Mr. Morgan, after your return from Europe with him?

Ans. I had charge of the draughting-room for the Washburn & Moen Manufacturing Company.

Cross-int. 98. Well, who put you in charge of the draughting-room?

Ans. I always supposed it was the directors of the Washburn & Moen Manufacturing Company.

Cross-int. 99. Do you really believe that the directors, in 1878, had any idea that there was such a man in the world as Fred. H.

Daniels; of course with the exception of Mr. Washburn, when attention to your connection with this business had been called by Mr. Morgan?

Ans. I was well acquainted with P. L. Moen, the president, and one of the directors; Charles F. Washburn, vice-president, and Charles H. Morgan, general superintendent, both of whom were directors. I did not know that Mr. Washburn's attention had
35 been called to this business by Mr. Morgan, and I was acquainted with all these directors for some three or four years or more previous to 1878.

Cross-int. 100. Well, don't you know that as a rule the directors do not interfere with Mr. Morgan in the selection and appointment of the personnel under him, for whom he is responsible to them?

Ans. I don't know anything about it; but I do know that Mr. Morgan has told me several times, when I have consulted with him regarding the terms of my employment, that he would consult and present the matter to the board of directors.

Cross-int. 101. If you did not know that such was the case, why did you go to Mr. Morgan and consult with him in regard to the terms of your employment, and why did you not go directly to the directors, and discuss with them?

Ans. I have made two agreements with Mr. Moen, the president of the company, regarding my employment.

Cross-int. 102. Before your return from Europe, in 1878?

Ans. No.

Cross-int. 103. When were these agreements made with Mr. Moen?

Ans. First, about five years ago; and the second, about two years ago.

(Recess.)

AT SAME PLACE, 2 P. M., *March* 15.

Cross-int. 104. Speaking of these two agreements, the subject of which you have just introduced, is the truth not this? In regard to the first agreement, you went to Mr. Morgan, and represented to him that you had received an offer of a situation in Cincinnati, I believe, and that a higher salary than you then received of the Washburn & Moen Manufacturing Company was offered you; and that thereupon you desired Mr. Morgan to use his influence with the directors to better your position, as an inducement to remain in his employ; and that Mr. Morgan thereupon made certain representations in your behalf to the directors, and they had agreed to your proposition, and they had agreed to the contract which he (Mr. Morgan) had made with you, and it was signed by Mr. Moen, as president, as all contracts are. In regard to the second,
36 made two years ago, was it not a fact that again you came to Mr. Morgan, and made representations that you wished to improve your position and make it more permanent, so you could have an outlook of five years before you; and that Mr. Morgan again interesting himself in your behalf, and made a request to the directors to accede to your request, and another contract was made

and executed by Mr. Moen, as president, as the former contract was?

Ans. Part of this statement is true, and part is not.

Cross-int. 105. State wherein it is true, and wherein it is not.

Ans. It is a fact that at two different times I have been offered a permanent position in iron and wire works in the West; that I told Mr. Morgan that I had had these offers; in each instance he told me to write a letter, stating the terms and considerations that would be satisfactory to me, and that he would present these letters at the next meeting of the board of directors. This was done, and the contracts were drawn up by myself and afterwards modified by Mr. Moen, and were signed by Mr. Moen and myself.

Cross-int. 106. Will you describe what your personal relations were with Mr. Morgan, after you came back from Europe, in 1878?

Ans. They were pleasant some of the time, and some of the time they were not.

Cross-int. 107. When were they pleasant, and when were they unpleasant?

Ans. I cannot state exactly.

Cross-int. 108. What was the occasion of any unpleasantness between you?

Ans. I made some very valuable inventions, which are now in use in our continuous rolling mills, for which patents were obtained. Mr. Morgan persuaded me to assign these inventions to the Washburn & Moen Manufacturing Company for one dollar, and other good and valuable considerations. I asked Mr. Morgan what the good and valuable considerations would be. He told me that I should be amply repaid for any advantages the company might derive from the use of these inventions. I have never received any consideration, and when I asked Mr. Morgan for it, he said there
37 was no such understanding. Another unpleasantness was caused when Mr. Morgan obtained patents for these inventions in European countries, in his own name.

Cross-int. 109. Did Mr. Morgan derive any personal benefit from the use of your alleged inventions by the company, or from any of the foreign patents that you say he took out?

Ans. I don't know whether he did or not; but if I had retained control of these inventions I could have obtained personal benefit.

Cross-int. 110. Was it not clearly and distinctly understood that the company should have the free use of any invention that you may have made during your employ by the company, and is not that the standing agreement today, under the contracts you say you drew yourself?

Ans. I never had any such understanding with the company until two years ago, when I made my last contract, which is not a standing contract, but expires in less than three years from now.

Cross-int. 111. With the exception of these grievances against Mr. Morgan, your personal relations with him were friendly and confidential, were they not?

Ans. They were, with one exception.

Cross-int. 112. Let's have that exception.

Ans. I have made a large number of inventions at different times during my employment by the Washburn & Moen Manufacturing Company, some forty or more, upon which patents have been obtained, and are now pending. The directors have encouraged me in my belief that many of these inventions are very important ones. I have felt for some years that Mr. Morgan did not give me the credit which I justly deserved.

Cross-int. 113. Will you please confine yourself in your answers to the time which the question contemplates? I speak of the time when you returned from Europe, in July, 1878, and ask you what your personal relations were with Mr. Morgan. I shall return to your grievances in due course of time. Now, if you please, answer my previous question.

(Counsel for Daniels here requests counsel for Morgan to avoid homilies, and make his questions plain, and also to stop this waste of time, and come to the case; and instructs the witness that
38 he need pay no attention whatever to anything but questions from the cross-examining counsel.)

Ans. My relations with Mr. Morgan were very agreeable, in July, 1878.

Cross-int. 114. How were they in 1879?

Ans. They were the same in 1879.

Cross-int. 115. How in 1880?

Ans. They were not satisfactory to me during 1880.

Cross-int. 116. Were you not, in 1880, a sort of a familiar visitor and friend at Mr. Morgan's house?

Ans. I was.

Cross-int. 117. Did you not then, and before that time, come to him with all your inventions and ideas, and discuss them with him, and obtain his co-operation?

Ans. Oh, yes. I brought very many inventions and ideas of mine, and showed them to Mr. Morgan; but cannot say that at all times I received co-operation.

Cross-int. 118. Did he not deny his co-operation only to visionary and impracticable schemes; and did he not, on the contrary, assist you to work out any and all ideas which appeared to be of possible utility?

Ans. He did not. Some of my inventions made at that time have since proved to be very valuable. I don't remember of any assistance, except in the case of some patents which he and I took out jointly in this country, and which patents I never dreamed were to be taken out until I was invited to sign the patent papers and assign the inventions without consideration. The next patents I obtained Mr. Morgan did not see until the patents were obtained.

Cross-int. 119. Examining the records of the Patent Office, I find that in the year 1880 you obtained, jointly with Mr. Morgan, the

following patents: No. 224,838, 224,839, 224,840, and 224,942. Did you apply for them jointly with Morgan?

(Objected, as a mere waste of time.)

Ans. I did.

Cross-int. 120. Upon further examining the records of the Patent Office, I find that no patents have been obtained by you after Feb. 24, in 1880, 1881 and 1882, but that in 1883 you obtained
39 five patents, and in 1884 three. Were these patents assigned to the Washburn & Moen Manufacturing Company.

Ans. Not at that time, but in the spring of 1885 they were.

Cross-int. 121. Was there any consideration passed?

Ans. There was.

Cross-int. 122. State what it was.

Ans. Twenty-five hundred dollars.

Cross-int. 123. For the whole lot of them?

Ans. For the eight patents.

Cross-int. 124. Had Mr. Morgan anything to do with this business?

Ans. I do not recollect that he had. The transaction took place between Charles F. Washburn (vice-president) and myself.

Cross-int. 125. Is any of these inventions covered by these patents in use?

Ans. Yes.

Cross-int. 126. Which?

Ans. The patent which illustrates the lateral adjustment of roll housings in a direction corresponding with the axes of the rolls, so as to move the rolls in their housing endwise.

Cross-int. 127. What is your present position at the Washburn & Moen Manufacturing Company?

Ans. I have no official title. My duties are very extensive. I have charge of the buildings and construction of new work relating to building additions, furnaces, etc., and charge of the masons and painters, sheet-iron work, and other duties which are quite numerous. I am more in position than the superintendent of buildings, as my numerous inventions will show.

Cross-int. 128. In November last you made an application to the Patent Office for postponement of time for taking testimony, on the ground that you were in communication with Mr. Carl Danielson, of Bofors, Sweden; and in an affidavit filed in support of that motion you stated that you had written to said Danielson on or about the sixth day of October, 1886. Can you now state whether you ever received an answer from Mr. Danielson? and if so, produce it.

Ans. I did. I haven't it with me, but can get it.

40 Cross-int. 129. Will you please get it and produce it tomorrow?

(Counsel for witness says, "We will see about it.")

Ans. I will try and find it, and will decide whether I will produce it or not.

Cross-int. 130. How did you obtain that affidavit from Mr. Bedson?

Ans. I wrote to a party in England, asking him to request Mr. Bedson to prepare a statement regarding my conversations with his father and himself in reference to an automatic reel.

Cross-int. 131. Who is the party you wrote to?

Ans. Philip M Justice.

Cross-int. 132. Was that affidavit drawn and prepared by Mr. Justice in conformity with instructions from yourself?

Ans. It was not. I wrote to Mr. Bedson beforehand, and told him that I would like a statement from him regarding my conversation in April, 1878, and that Mr. Justice would call and see him regarding the matter.

Cross-int. 133. Have you a copy of the letter that your wrote to Mr. Bedson?

Ans. I think I have.

Cross-int. 134. Will you produce it?

Ans. It is not here. I will decide, after I find it.

Cross-int. 135. What have you to decide?

Ans. Whether I produce it or not.

Cross-int. 136. Do you suspect that there are reasons why you should not produce it?

Ans. Not the slightest, that I know of.

Cross-int. 137. Please look for the copy, and produce it tomorrow, will you?

Ans. I will decide tomorrow whether I will produce it or not.

Cross-int. 138. Did you have any correspondence with Carl Angstrom?

Ans. I have written him, but have received no reply.

Cross-int. 139. Did you keep a copy of the letter which you wrote to him?

Ans. I have a press copy.

Cross-int. 140. Will you please produce it?

41 Ans. It is not here. I will decide tomorrow whether I will produce it or not.

Cross-int. 141. You have stated that you have the sketch made by Carl Angstrom in 1878. Will you produce it?

Ans. Yes.

(Witness produces the sketch and hands it to Mr. Pollok. Mr. Pollok requests that it may be marked as *an* "Exhibit Angstrom Sketch," and Mr. Maynadier assenting to the request, it is so marked.)

Cross-int. 142. Are you in the habit of preserving the sketches that are made by others in conversation with you?

Ans. No, sir.

Cross-int. 143. What did you do with the sketches that were made by Mr. Morgan in his almost daily conversations with you?

Ans. I do not remember that it was a regular habit for him to make sketches for me, and it is my remembrance that I have handed him full as many sketches of my plans as he has handed to me of

his plans. I do not know of any of his sketches that have been preserved, and do not know that I have any of them.

Cross-int. 144. As chief draughtsman, was it not your duty to preserve all the sketches that were made in the service of the company, and particularly by your superior, in aid and illustration of his instructions?

Ans. His sketches were so few in number, and were crude, on account of having been made quickly, that I had never been in the habit of preserving them.

Cross-int. 145. But you did preserve, didn't you, the sketches made by yourself?

Ans. No, sir; but a small proportion of my sketches have been preserved.

Cross-int. 146. What are the sketches contained in the book containing Exhibit Sketches 1, 2, etc.?

Ans. Mostly, they illustrate ideas which occurred to me from time to time.

Cross-int. 147. For instance, sketch dated "Oct. 26, 1878,"
42 and titled "Sketch of automatic reel proposed by Mr. Stover;" is that one of your ideas?

Ans. It is not. I stated that the sketches "mostly illustrated ideas that occurred to me."

Cross-int. 148. You have produced a great many sketches and drawings in books and on loose sheets of paper. Will you now state unequivocally which of all these represents the invention which is the subject of this controversy, and please confine yourself to one drawing or sketch.

(Objected to as contradictory, the last clause contradicting the first, and *vice versa;* and the witness is instructed that the question means to ask which of the sketches and drawings shows the invention in controversy.)

Ans. Exhibit Daniels Sketch 1, Exhibit Daniels Sketch 2, Exhibit Daniels Sketch 3, Exhibit Daniels Drawing 1, Exhibit Daniels Drawing 2, Exhibit Daniels Drawing 3.

Cross-int. 149. What is your interest in the application involved in this interference?

Ans. It is a large one, and as it is a private matter between myself and the Washburn & Moen Manufacturing Company, I do not care to make it public.

Cross-int. 150. Who is paying the expenses of this interference?

Ans. I do not know.

(Examination of Mr. Daniels continued till Wednesday morning, by consent.)

GEORGE A. LAMBERT, being duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded by Mr. Maynadier, counsel for Daniels, says:

Int. 1. What is your name, age, residence, and occupation?

Ans. George A. Lambert; forty-nine years; Worcester, Mass.;
49 Fountain street; tinsmith.

Int. 2. Do you know Fred. H. Daniels? If so, how long have you known him?

Ans. Ever since I have been in the mill here—about sixteen years—somewheres near.

Int. 3. Did he ever speak to you about coiling wire rods as
43 they came from the rolling mill? If so, when first, and what did he say, in substance?

Ans. Yes, sir; after he came back from Europe the last time that I remember he went to Europe, he came into the shop with a sketch, and asked me to make a model of it. I was very busy; I looked at the sketch, and told him that I hadn't time. Mr. Mack was boss then, and I had to go by Mr. Mack and Mr. Morgan. We talked a little, and I looked at the model, and I asked him if he proposed to have a man put his foot on that all day. He said, "Yes." I said, "Well, he'll be d—d tired." He laughed a little and went off laughing.

Int. 4. You say in your last answer you looked at the model. Please explain what you mean by model

Ans. We looked at the sketches.

Int. 5. What did the sketch show, as explained by him?

Ans. It showed a round piece of iron, with a shaft in the center, and a casing around the round piece of iron that made a dish. Inside the shaft there was a hole to put a pin in another shaft, a hollow shaft. The inside shaft was longer than the outside one. This round piece of iron with the casing and the shaft was put onto a square bench. Inside of the large casing was a piece of iron attached to the inside shaft, which I call a "spider," and then there was a bar and another piece of iron underneath that to take hold of the inside shaft under the bench, to raise it up. Further this way, outside of the bench, there was a place to put your foot on.

Int. 6. Did you afterwards make a tin model for Mr. Daniels. If so, please look at the model now shown you, and see if that is it, or not?

Ans. Yes; I made that last fall.

(Model now put in evidence, and marked "Exhibit Lambert Model.")

Int. 7. When you made that model last fall, what did you go by?

Ans. I went by my judgment and the sketch I had seen before.

Int. 8. State what Daniels said to you, in substance, when he asked you to make the model now before you.

Ans. He came down to the shop and asked me if I remem-
44 bered the time he showed me a sketch for a reel in the old shop. I told him I did; and says he, "Can you make me a model of it now?" I told him I could. Says I, "Do you want a nice one?" He says, "Make it as nice as you can." Says I, "Where is your sketch?" Says he, "I have none." Says he, "I want you to make it as you remember it; no more and no less; make it just as you remember it and let me have it;" and I made that (pointing to Exhibit Lambert Model).

Int. 9. When was it that he showed you that sketch, as near as you can tell?

Ans. When he came back from Europe.

Int. 10. About how long after he got back was it?

Ans. I should think two or three weeks, if not four; somewhere near that.

Cross-examination by Mr. POLLOK:

Cross-int. 11. You are a Canadian, are you not?

Ans. I am.

Cross-int. 12. You have said you have known Mr. Daniels ever since you have been at the mill.

Ans. Yes; I think it is about sixteen years ago.

Cross-int. 13. Do you know what year it was that Mr. Daniels came back from Europe?

Ans. I can't tell you today, but I can tomorrow. I have some papers which will show. I was not prepared.

Cross-int. 14. What is the nature of these papers?

Ans. Some bills; I keep all my receipts. I lived on Main street at that time; I have moved five times.

Cross-int. 15. Would these papers show you when Mr. Daniels came back from Europe?

Ans. No; I can make out pretty near.

Cross-int. 16. How could you make out the date of his return from these papers?

Ans. I couldn't make out the exact date, I don't think; but I know it is right off after he came back from Europe,

Cross-int. 17. You know, don't you, that he came back twice from Europe?

Ans. Yes; this was the last time that he came back from
45 Europe. I don't think he has been to Europe since. He has been to Europe twice, in my knowledge.

Cross-int. 18. Was that sketch that he showed you a perspective view?

Ans. I don't know what that means.

Cross-int. 19. Can you read a drawing?

Ans. What do you mean by that: seeing a plan and making a model after it? You show me a drawing and I'll make a model after it. If you call that reading, I can do it.

Cross-int. 20. Do you remember all the drawings that you saw within the last eight or nine years, and could you make a model from them from memory?

Ans. Yes, sir; every bloody one of them.

Cross-int. 21. Can you make a sketch?

Ans. Yes, a little; not very nice; enough for my own purpose.

Cross-int. 22. Were you ever employed in making models from sketches, excepting this?

Ans. Yes, sir; I made a number; some for Mr. Morgan.

Cross-int. 23. Well, will you recall any that you made for Mr. Morgan?

Ans. The first one that I made was a patent gas annealer; it was not finished. The next one, I believe it was the next one, was an elevator; I believe it went by steam and water. The next one after that was the model of the Belgian mill furnace; I made that. Then, again, I made, when Mr. Morgan went to Europe the first time, I made tinning-room furnaces. Mr. Moen got me to. One model, two models. Mr. Morgan was away to Europe. Just gone. Mr. Moen used to take Mr. Morgan's place. He used to come into the shop when Mr. McNeil was gone, and order me to do this and that.

Cross-int. 24. Could you make a sketch of Mr. Morgan's elevator?

Ans. I could make a model without any sketch.

Cross-int. 25. You were here in the fall of 1879; were you at the mill?

Ans. Yes, sir; I was.

Cross-int. 26. You were about the mill, and saw what was going on, did you not?

46 Ans. I was about the mill, about my business; not looking after anybody else's business; it is not my style, about my work.

Cross-int. 27. You remember having seen a pair—two reels—in No. 2 mill, known as the automatic reel?

Ans. Yes.

Cross-int. 28. Did you see them tried?

Ans. Yes.

Cross-int. 29. Were they anything like this? (Exhibit Lambert Model.)

Ans. No; they was two, instead of one.

Cross-int. 30. Two like this? (Exhibit Lambert Model.)

Ans. No.

Cross-int. 31. Will you state what points of resemblance, if any, there were between these reels and this, represented by your model?

Ans. All you could see was this outside rim and the bottom, and I did not know what there was under, or nothing at all.

Cross-int. 32. You could not see of the automatic reel anything but what?

Ans. The rim and the bottom.

Cross-int. 33. Is there any reel now running in the mill that has the rim and the bottom and the pins and the spider, as shown in your model?

Ans. Yes, I think there is.

Cross-int. 34. Since when?

Ans. I don't know.

Cross-int. 35. When did you first see it?

Ans. The first when I examined it good was up in the machine shop. I had some work to do on it, and I looked the machine over. That was lately.

Cross-int. 36. Now, Mr. Lambert, answer my previous question: when did you first see the reel that is now in operation in mill No. 2?

Ans. It was when Mr. Morgan went to Texas, lately—I went to the machine shop—I had some work to do there on the reels.

(Adjourned to 9.39 p. m., Wednesday.)

H. E. HILL, *Master.*

47 At time and place noted in last notice of adjournment, the same parties being present, the cross-examination of Mr. LAMBERT was continued:

Cross-int. 37. In your answer to Int. 23, you have said that you have made models for Mr. Morgan for the gas annealers, for the elevator and for the Belgian mill furnace, and that these models were made from sketches. State when those sketches were handed to you by Mr. Morgan. Give their respective dates, as near as you can.

Ans. Well, I couldn't give you the exact date just now. The gas annealer was the first one that I made. It was either two or three years after I commenced here. Between two and three, I think. As close as I can remember the elevator—that was two or three years after that. The Belgian mill furnace was the last model I made. I hain't got the date,—say a couple of years later.

Cross-int. 38. What makes you think that Mr. Daniels showed you the sketch of the reel about two or three weeks, if not four, after his return from Europe?

Ans. I don't think so. I know so. I know when he was gone and when he came back.

Cross-int. 39. How do you know that it was two or three or four weeks after his return?

Ans. Well, when he was away, of course he didn't come to the shop; and when he was in he used to come occasionally; and when he came with the model it was about the first time that he came to see me, that I remember.

Cross-int. 40. How do you know that it was not four months or four years after his return that he showed you the sketch?

Ans. Well, I have common sense enough to know the difference between "four years" and "four months," I think.

Cross-int. 41. How do you fix the time that had elapsed between his arrival from Europe and his showing you the sketch?

Ans. A man is away some time and anxious to come to see a fellow, and I remembered it. That is the way I fixed that.

Cross-int. 42. Then it is a sort of guess of yours, and it might have been the time it is usual for a man to call on a fellow in the course of social visiting, isn't it?

48 Ans. I don't guess. I am not a Yankee. I am a French Canadian, as this gentleman said last night.

Cross-int. 43. Well, how do you come to fix the time when he called on you as being two or three, or possibly four, weeks after his return from Europe?

Ans. Well, as I said before, he was away, and I expected he should come to see me after he got back, and that's the way I fixed the time when he came.

Cross-int. 44. What made you expect his calling on you?

Ans. It was his usual business to come in the tin shop once in a while.

Cross-int. 45. What business had he in the tin shop?

Ans. He used to come with some little repairs sometimes, and sometimes to have a little job done. I used to cut some little steel plates to trim the roll by, and cut 'em for the machine shop, too.

Cross-int. 46. Was his business, when he called on you at the tin shop, connected with the Washburn & Moen Manufacturing Company's business?

Ans. I think so; at least I took it so.

Cross-int. 47. Were you at that time under his orders?

Ans. No, sir. I was under Mr. Morgan first, and Mr. McNeil. My orders was when Mr. McNeil gave me something to do, I went at it and done it. My instruction was when Mr. Morgan came into the shop and wanted some work done, to leave Mr. McNeil's work and do Mr. Morgan's first.

Cross-int. 48. You are now under Mr. Daniels's orders, are you not?

Ans. Yes, sir.

Cross-int. 49. Are you willing to swear that Mr. Daniels did not call on you, if he called at all, with sketch spoken of, some four months or more after his return from Europe?

Ans. I am willing to swear that he called on me soon after he got back from Europe the last time, with that sketch.

G. A. LAMBERT.

49 HORACE A. YOUNG, being duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded to him by Mr. Maynadier, deposes and says:

Int. 1. What is your name, age, residence, and occupation?

Ans. Horace A. Young; fifty-five years; Worcester; mechanic.

Int. 2. Please look at these drawings, Exhibit Daniels Drawing 2, and state what you know about them and the machine built from them.

Ans. Well, I know such drawings were put in my hands when they were finished, and I had machines built from them.

Int. 3. Do you know anything about the test of the apparatus built from these drawings? If so, please state what you know about it.

Ans. Yes, I know I was there when they were started and run. One of the troubles was, that the centre spider lifted too quick; in other words, it lifted before the reel stopped. The other trouble was, that the frame was a wooden frame, and couldn't be held in position. These are the only drawbacks that I remember.

Int. 4. Now, please look at Exhibit Daniels Drawing 3, and state if you see anything in the latter drawings for the purpose of correcting these drawbacks. If so, what?

Ans. Yes, sir. I see a difference in the method of driving the reel, and also provisions made for lifting the main spindle and tub

or case quicker. I also see provisions made for tying the parts more firmly together.

Int. 5. The right-hand figure in Exhibit Daniels Drawing 3 shows the lower hydraulic cylinder a good deal larger than it is shown in the Daniels drawing 2, and the right-hand drawing of Daniels drawing 3 shows a casting which connects together the timbers. Am I right as to these matters; and if so, are they what you referred to in your last answer?

Ans. Yes, sir.

Int. 6. What did you do, if anything, about building an apparatus with the alterations shown in the Exhibit Daniels Drawing 3?

50 Ans. I had the patterns made for all the parts except the cylinder at the bottom, which I don't remember having made. Got the castings and had most of the machine-work done.

Int. 7. When was the first apparatus made after Exhibit Daniels Drawing 2, as near as you can now state?

Ans. It was some time after the 28th of February, 1880.

Int. 8. Do you know the cause of the delay from Oct. 9, 1879, the date of Exhibit Daniels Drawing 2?

Ans. Pressure of other business—other work.

Int. 9. When was the altered apparatus from Exhibit Daniels Drawing 3, and the other drawings which were with it, built, so far as it was built?

Ans. I have not any positive means of knowing the exact date. In my previous answer I say after the 28th of February, 1880. I have an order, No. 26, which directs me to consult Mr. Daniels in regard to alterations in automatic reels; that is the only record I have.

Int. 10. When was the test of the first apparatus?

Ans. I have no positive means of knowing.

Int. 11. So far as you know, why was not the apparatus shown in Daniels drawing 3 completed during 1880 and 1881, or 1882?

Ans. Because of the press of other work.

Int. 12. Please look at this paper, Exhibit Order, and state what you know about it, and to what it refers.

Ans. I received this order from Mr. Washburn, through Mr. Daniels, and had made preparations to execute it. When Mr Morgan came back, I showed him all the orders I had in process, and he wrote upon them simply "Hold," signing his name. It refers to the completion of the two automatic reels which we have been speaking of.

Int. 13. How long, in your judgment, would it have taken to complete these two automatic reels, ready for use?

Ans. Three weeks, perhaps.

Int. 14. In your judgment, how would these automatic reels have answered the purpose for which they were designed?

Ans. I think they would have worked successfully.

Int. 15. How long was it after the date of Exhibit Order

51 before automatic reels, each with a discharging platform, were in fact made to work successfully?

Ans. About sixteen or seventeen months, I think.

Int. 16. What became of the pair of automatic reels to which Exhibit Order relates?

Ans. They were taken to pieces, and the parts were thrown into the scrap pile.

Int. 17. By whose order was this done?

Ans. I haven't a distinct remembrance in regard to that.

Int. 18. Who executed the order for the destruction of this pair of reels?

Ans. The machine-shop helpers.

Int. 19. Under whose orders were these helpers directly acting?

Ans. Daniel Pendleton.

Int. 20. Under whose order was Daniel Pendleton directly acting?

Ans. My own.

Int. 21. Did you give that order to Daniel Pendleton of your own will, or by the order of some one?

Ans. That is the point I am uncertain about.

Int. 22. Can you recall any reason why you individually should desire that pair of reels to be destroyed?

Ans. No, sir.

Int. 23. What is your custom, as master workman, in giving orders for the destruction of machinery?

Ans. I usually receive orders from Mr. Morgan in relation to that; there are some exceptions.

Int. 24. How long, in your judgment, were the Washburn & Moen Manufacturing Company delayed in the practical production of small wire rods by the destruction of this pair of automatic reels?

Ans. Perhaps a year.

Int. 25. Have you any doubt that you had an order from some one for the destruction of this pair of automatic reels?

Ans. Yes, sir; I have.

Int. 26. Please state what the condition of your mind is about the matter; *i. e.*, what, if anything, you now recall, which might have led you to desire their destruction, in view of Exhibit
52 Order, *i. e.*, order No. 1103, dated Aug. 31, 1885, to complete them, or which might have led you to order their destruction without some suggestion, request or order from some one else?

Ans. I knew there were other plans of reels being prepared. With the experience we had had with the first reels, I supposed that all difficulties with them could be overcome, and that there would be no further use for the reels already constructed and in process of alteration. I was cramped for room, these reels occupying a space I wished to use for other purposes. I therefore desired to get rid of them—to get them out of the way.

Int. 27. Did Mr. Morgan tell you any reason for countermanding order No. 1103, Exhibit Order?

Ans. I have no remembrance that he did. I think he did not.

Int. 28. Who was preparing the other plans of reels, referred to in your answer to Int. 26?

Ans. They were being prepared in the drawing-room by the chief draughtsman, Mr. Forstedt.

Ans. 29. Do you recollect a search for this drawing, now marked "Exhibit Daniels Drawing 3"? If so, when, and with what result?

Ans. Yes, I remember a search for it. It was immediately after the reception of this order of Aug. 31, 1885. We did not find it.

(Cross-examination waived by Mr. Pollok, counsel for Mr. Morgan.)

HORACE A. YOUNG.

Deposition of FRED. H. DANIELS resumed:

Cross-int. 151. Have you looked for those papers you were asked to produce yesterday?

Ans. I have. Here is letter to Karl Angstrom, dated Oct. 22, 1886. Here is letter to Karl Danielson, dated Oct. 6, 1886, and his reply. Here is letter to Joseph Bedson, dated Oct. 6, 1886, and his reply. Here is letter to Joseph P. Bedson, dated Dec. 24, 1886, and his affidavit is the reply.

Cross-int. 152. Will you allow the magistrate to make a copy of these letters, and annex to your deposition?

Ans. I will.

53 (Marked "Exhibit Angstrom Letter, Oct. 22, 1886;" "Exhibit Bedson Letter, Oct. 6. 1886;" "Exhibit Danielson Letter, Oct. 6, 1886;" "Exhibit Bedson Letter, Dec. 24, 1886;" "Exhibit Danielson Letter, Nov. 29, 1886;" "Exhibit Bedson Letter, Oct. 30, 1886.")

Cross-int. 153. According to the exhibits just introduced, you seem to think that you communicated your idea of the lifting fork to Mr. Bedson in England, and to Mr. Danielson in Sweden. Did you communicate the same idea to any other persons? If so, name them.

Ans. I do not remember that I did.

Cross-int. 154. According to Exhibit Angstrom letter, you seem to think that you communicated the idea of the invention involved in this interference to Mr. Angstrom. If you communicated the same idea to any other person or persons, please name them.

Ans. George A. Lambert, George H. Fowler, E. P. Hemenway, Charles H. Morgan, and others, after Exhibit Drawings were made.

Cross-int. 155. Do you wish to be understood that you communicated these ideas to these persons after Exhibit Drawings were made, or does the time refer to the "others" alluded to in your last answer.

Ans. I communicated my ideas to the persons named before the Exhibit Drawings were made.

Cross-int. 156. Now state the time when you think you communicated the idea of this invention to Mr. Charles H. Morgan.

Ans. During March and April, 1879.

Cross-int. 157. Why didn't you say so in your preliminary statement?

Ans. I do not know of any reason.

Cross-int. 158. Was it by accident that the omission occurred?

Ans. I didn't think anything about it.

Cross-int. 159. About what?

Ans. About stating when I showed Mr. Morgan my ideas regarding the reel.

Cross-int. 160. Didn't you know that this interference was with Mr. Morgan, when you made your preliminary statement?

Ans. I did.

54 Cross-int. 161. Well, how did you know that?

Ans. I received a communication from the Patent Office, stating we were in interference.

Cross-int. 162. Are you not mistaken as to that?

Ans. I do not know that I am.

Cross-int. 163. Will you produce the communication that you received from the Patent Office?

Ans. I do.

(Witness produces the office letter of Sept. 4, 1886.)

Cross-int. 164. In regard to Exhibits Daniels Drawings 1, 2 and 3, are they not the property of the Washburn & Moen Manufacturing Company?

Ans. Exhibit Drawing 1 I consider my property. I have always had it in my possession, and it has never been in the files in the draughting-room of the Washburn & Moen Manufacturing Company. Exhibit Drawings 2 and 3 belong to the Washburn & Moen Manufacturing Company.

Cross-int. 165. Where was Exhibit Drawing 1 made?

Ans. In the draughting-room of the Washburn & Moen Manufacturing Company.

Cross-int. 166. During the time you were paid for by the company?

Ans. Probably so; but I have at times worked noon hours and overtime on my own account; at that time I was employed by the hour. Many of my most important inventions were made when out of the employ of the company.

Direct examination resumed:

Int. 167. What engineering work have you done or aided in doing, since 1878?

(Objected to as not redirect.)

Ans. Since 1878 I have advised regarding some of the most important additions and changes that have been made at the Washburn & Moen Manufacturing Company. I made most of the drawings and had charge of the draughtsmen employed in making drawings for our No. 2 continuous rolling mill. I was also present to see if the drawings were properly executed. Since the

55 completion of the No. 2 continuous rolling mill, up to the present time, I have advanced ideas, many of which have been patented, and also adopted and brought into general use

throughout the works, proving themselves to be of great value in cheapening the production of wire.

(March 16.—Adjourned to the same place at 2 p. m. At time and place above set forth, hearing renewed.)

Int. 168. Please explain what you mean by seeing if the drawings were properly executed.

Ans. I meant that I was present to see if the work on the mill was constructed in accordance with the drawings.

Int. 169. It has appeared from the testimony that the second pair of automatic reels made after Exhibits Daniels Drawing 3 were not completed up to April 1, 1885, when Mr. Morgan left the works; and that nothing further was done about them after April 1, 1885, until you obtained order No. 1103, marked "Exhibit Order," from Mr. Washburn, which order was afterwards countermanded by Mr. Morgan. So far as you understand, what was the reason of this delay in completing that pair of automatic reels during '80, '81, '82, '83, '84 and '85, up to April 1?

Ans. I do not know of any reason, other than that Mr. Morgan, whose business it was to push such matters, had apparently lost all interest in this automatic reel.

Int. 170. When did he first show an active interest in this method of rolling small rods; I mean by the use of the automatic reel in controversy?

(Objected to as incompetent and not redirect.)

Ans. After his return to the works, in the fall of 1885.

Int. 171. Was this the only method of rolling small rods that he was then actively interested in? If not, state briefly what the other method was, and who invented the other method, or who asserted himself to be the inventor.

(Objected to as not redirect, and inquiring about matter which is immaterial and irrelevant.)

Ans. It was not. Mr. Morgan was very much interested in a plan for rolling small wire rods by a system known as the anti-inertia plan, which consisted in introducing an intermediate hot reel between a primary and secondary or finishing set of rolls.

56 Mr. Morgan claimed to have invented this plan for producing small wire rods. The same invention was also claimed by Mr. Edwin S. Lenox.

Cross-examination resumed:

Cross-int. 172. Do you refer to that "put-up job," known as the "Morgan and Lenox interference"?

Ans. I do not know anything about a "put-up job." I simply know that the invention was claimed by Mr. Morgan and Mr. Lenox.

Cross-int. 173. Were you not one of the witnesses in that case?

Ans. I was.

Cross-int. 174. Who examined you, and on whose behalf were you examined, and who was present?

Ans. James E. Maynadier, Esq. I testified on behalf of Mr. Lenox. There were present H. E. Hill, Esq., Mr. Maynadier, Mr. Lenox, Charles H. Burleigh. I do not recollect that there were others.

Cross-int. 175. Were you cross-examined?

Ans. I was not.

Cross-int. 176. Do you know why?

Ans. I haven't the slightest idea.

Cross-int. 177. Were you not to be examined on some other occasion on the same case?

Ans. I did not know that I was.

Cross-int. 178. Were you not informed that notices were served on counsel of Morgan to attend your examination, and when he appeared at the time and place indicated in said notice neither you nor any other witnesses were present?

Ans. I did not. I also did not know that I should testify until an hour before I testified.

Cross-int. 179. Did you know that your testimony was taken in that case in violation of an agreement which had been reached between Mr. Morgan and the Washburn & Moen Manufacturing Company that the case should not be prosecuted, and that Mr. Morgan should do nothing further in the matter?

Ans. I did not know anything about such an agreement.

FRED. H. DANIELS.

57 It is agreed that tracings of Exhibits Daniels Drawing 1, Daniels Drawing 2, and Daniels Drawing 3, and Angstrom Sketches may be substituted for the originals, and retained by the magistrate instead of the originals, and that all the exhibits be retained by the magistrate until the testimony is closed by both sides, unless otherwise agreed upon by both counsel.

H. E. HILL, *Master.*

The master here announces hearing closed, March 16, 3.50 p. m.

H. E. HILL.

OCT. 6, 1886.

Mr. Joseph Bedson, sup't, Manchester, Eng.

MY DEAR SIR: Mr. Chas. F. Washburn has suggested that I write you regarding an automatic reel that I talked with your father about, at the time that I visited your works with Mr. Bergendal, April, 1878.

At that time I asked Mr. Bedson's opinion regarding an automatic reel for wire-rod rolling mills, showing him sketches. My plan was to direct the first end of the finished wire rod between the spokes of a revolving reel, removing the coil with a fork after coiling. The sketch was substantially as below.

I think you were present during this talk, and I write to ask you if you did not hear the conversation. Your father, he had thought

of this subject of automatic reels, but did not think it could be made to work satisfactory.

Yours very truly, FRED. H. DANIELS,
Cr. Washburn & Moen Mfg. Co.

OCT. 6, 1886.

Mr. Carl Danielson, Bofors, Sweden.

MY DEAR SIR: I write to ask you a question regarding an automatic reel which I invented while with you at Bofors. I remember that during January, 1878, I showed you a plan for reeling
58 wire rods direct as they are finished from the last pair of rolls. My plan was to set the reel directly in front of the finishing rolls and direct the wire by a pipe between the spokes of the reel, thus catching the first end of the wire without any boy for picking up the end. I also had a fork for taking the wire off from the reel.

The sketch below will illustrate the plan which I had at that time.

Please let me know if you remember about this conversation. Give my best regards to Mrs. D. and all my friends at Bofors. If you will come to America, I shall be able to show you many new and interesting works.

Yours very truly, FRED. H. DANIELS.

JOSEPH PHILLIPS BEDSON, of Bradford house, Manchester, England, being duly sworn, deposes and says that he is thirty-six years of age, and is now and has been for the past fourteen and a half years engaged as engineer, assistant manager and now general manager of Richard Johnson & Nephew's Bradford iron works, Manchester; that he was present during an interview between his father, Mr. George Bedson, now deceased, and Mr. Fred. H. Daniels, of Worcester, Mass., United States of America, at the above-named works in Manchester, England, during the month of April, 1878, and that he well remembers the particulars of such interview, which was in substance substantially as hereinafter set forth.

Mr. Fred. H. Daniels at that time introduced the subject of automatic reels for reeling hot wire rods, and described a plan or method which he (Mr. Daniels) had conceived for automatically coiling the wire rods directly as they are finished by the rolling mill, which method consisted in conducting or directing the hot rod between the spokes of a revolving reel by means of a guide or pipe, the reel being arranged to revolve on an upright axis and to wind up the rod as fast as it formed and as it issued from the rolling mill; then, when the entire rod was coiled or reeled up, the coil was to be removed from the reel by means of a fork or lifting device placed under the coil and elevated by means of a lever so as to raise
59 the coil bodily above the ends of the spokes or fingers of the reel, and then transporting the coil by the aid of an overhead track to the desired place of delivery.

During the said interview the said Fred. H. Daniels produced a drawing or sketch illustrating the apparatus he proposed to employ

in said process, and by means of the same further explained to his father and himself in detail how his said process was to be practically employed.

The said drawing or sketch was in all essential particulars substantially as shown in the following sketch.

As a record of this conversation, he well remembers his father telling Mr. Daniels that he also had thought of this plan, but had never put it into practical use or trial, as he believed that nothing would be gained thereby.

JOS. PHILLIPS BEDSON.

Sworn to and subscribed before me at Manchester, this twenty-fourth day of January, 1887.

[SEAL.]

J. T. DOYLE,
Vice and Deputy U. S. Consul.

(Dictated.)

WORCESTER, MASS., *Oct.* 22, 1886.

Karl Angstrom, Esq., Domnarvet iron works, Domnarvet, Sweden.

FRIEND ANGSTROM: On account of certain arrangements between the Washburn & Moen Mfg. Co. and myself, it is important that I fix the date of invention regarding my improved lifting device for removing coils of wire rods from automatic coiling mechanism or coil-receiving tubs. In July of 1878 I invented a tub reel having an elevating frame or spider in the bottom of the tub onto which the coil of finished wire rod was deposited, and which was to be raised to discharge the coil when complete. The idea is illustrated by the enclosed sketches.

Shortly after you came to Washburn & Moen's I think that I had a long talk with you regarding this reel, which you will probably call to mind. During the early part of 1879 I made improvements in the means used for raising the spider or platform
60 by introducing a hydraulic cylinder, and I also talked with you about this improvement; the accompanying sketch illustrates what I had in view at that time. It will be of great assistance to me if you will write out and send to me as soon as possible a full and concise statement of what you remember regarding these plans, specifying as near as possible the dates of our conversations, and stating the substance of what was said in regard to this mechanism, and what information I gave you regarding my ideas as to the construction, purpose and manner of using the invention.

You will please excuse my troubling you in this matter, but evidence on this subject is just now of importance to me; and I shall be pleased at any time to reciprocate in such way as I can, and I trust you will feel at liberty to call upon me when I can be of service to you.

Very truly yours,

FRED. H. DANIELS.

BRADFORD HOUSE, MANCHESTER, *Oct.* 30, 1886.

DEAR SIR: In reply to yours of the 16th inst. I do well remember the conversation you speak of, and it was substantially as set forth in your letter.

I should have replied earlier, but I have been so busy that my private correspondence has somewhat been neglected; so I must ask you to accept my apology.

Trusting you are quite well, and with kind regards,

I am yours truly,

JOS. PHILLIPS BEDSON.

Mr. Fred. H. Daniels, Worcester.

Aktiebolaget
Bofors-Gullspang. BOFORS, *den Nov.* 29, 1886.

Fred. H. Daniels, Esq., Worcester, Mass., U. S. A.

MY DEAR SIR: On account of a journey abroad I have been prevented in answering your letter of Oct. 6.

61 Respecting the reel in question, I am sorry to say that it has altogether passed off my remembrance, and neither Mr. Sander nor the foreman at the mill have any recollection of it. We now use a reel worked by power through belting, but that is invented by the blacksmith, Carlberg, and not like the one you mention, which you can judge from enclosed sketch.

Your proposed arrangement seems to me to be very good, but it is not applicable with us on account of that we, as exporters of wire rods, must use two reels adjusted so that one bundle can be put inside the other for saving room for shipment.

Have you no intention of going over to Sweden? I should be happy to see you here at Bofors, which has been enlarged to some extent since you left. We have recently erected foundry for "solid steel castings," as well as mechanical shop for manufacturing heavy ordnance. My wife and myself unite in sending our best wishes to you and your family.

Your old friend, C. DANIELSON.

DEC. 24, 1886.

Joseph P. Bedson, Esq., Bradford House, Manchester, Eng.

MY DEAR SIR: Referring to your favor of Oct. 30, regarding my plan for coiling wire rods. Mr. Washburn has thought it would be well to ask you for a statement regarding the conversation I had at your works with your father, regarding this reel, and he has written to Philip M. Justice, of London, to call at your place and see you regarding this matter.

I write you so that you may be informed regarding his coming, and may know what it is all about. With my best regards and a merry Christmas,

I remain yours truly, F. H. DANIELS.

62 *Memorandum.*

From Chas. F. Washburn, V.-pres't.

Office of General Superintendent Washburn & Moen Manufacturing Company,

WORCESTER, MASS., *Aug.* 31, 1885.

Order No. 1103.

To Mr. Young, for two automatic reels in continuous mill No. 2.

C. F. WASHBURN, *V. P.*

Hold. C. H. M.

STATE OF MASSACHUSETTS, *County of Worcester,* } *ss:*

I, Henry Eveleth Hill, a notary public, in and for the county of Worcester and Commonwealth of Massachusetts, do hereby certify that the foregoing depositions of Fred. H. Daniels, George H. Fowler, George A. Lambert, E. P. Hemenway, and Horace A. Young were taken on behalf of Fred. H. Daniels, in pursuance of the notice hereto annexed, before me, at the office of the Washburn & Moen Manufacturing Company, No. 94 Grove street, Worcester aforesaid, on the fourteenth, fifteenth and sixteenth days of March, A. D. 1887; that each of said witnesses was by me duly sworn before the commencement of his testimony; that the testimony of said witnesses was written out by myself; that the opposing party, Charles H. Morgan, was present with his counsel during the taking of said testimony; that said testimony was taken at the time and place specified in the within notice, and was commenced at ten o'clock, March 14, A. D. 1887, was continued pursuant to adjournments on the 15th and 16th, and was concluded on the afternoon of the 16th of said month, at 3.50 p. m.; that I am not connected by blood or marriage with either of the said parties, or interested directly or indirectly in the matter in controversy.

In testimony whereof I have hereunto set my hand, and affixed my seal of office, at Worcester, in said county, this sixteenth day of March, A. D. 1887.

[SEAL.] HENRY EVELETH HILL,
Notary Public.

63 *Evidence for Defendant.*

Before the U. S. Patent Office, *in re* Interference.

DANIELS
v.
MORGAN.

Reel for wire-rod rolling mills.

CHARLES H. MORGAN, being duly sworn, deposes and says:

I first conceived the invention at issue in the above-entitled interference on or about Oct. 27, 1878, and on the same day disclosed it

to one D. C. Stover. In all other respects the preliminary statements heretofore made in this case are true and correct; this present statement being made, by leave of the Patent Office, to correct a mistake in said former statements.

CHAS. H. MORGAN.

Subscribed and sworn to before me, this third day of August, 1887.
[SEAL.] H. L. PARKER,
Notary Public.

In the United States Patent Office.

Interference declared Sept. 4, 1886, between the application of Charles H. Morgan and the application of F. H. Daniels. Subject-matter—reel for wire-rod rolling mills.

Preliminary Statement of C. H. Morgan.

COUNTY OF WORCESTER, } ss:
State of Massachusetts, }

CHARLES H. MORGAN, being duly sworn, deposes and says as follows:

I conceived the invention described and claimed in my application aforesaid, and forming the subject-matter of the above interference, about the months of March and April, 1879. I made sketches and designs illustrating the invention at this time, and from these sketches working drawings were prepared by my
64 draughtsmen, and under my instructions. About the month of October, 1879, the construction of a pair of reels was begun, and they were finished and tested about the month of December, 1879. The construction of these reels was found to be defective in certain particulars. I understood these defects at the time, and clearly perceived how the same could be remedied, but did not construct any other reels at that time, because, on account of another invention, the demand for such reel was not pressing, and it was not until the year 1885 that the requirements of the business called for the reel that I had invented in 1878. Shortly after September, 1885, I took the matter up again, and made additional sketches and designs in accordance with my previous conception. In November or early in December, 1885, I had draughtsmen at work upon these designs. The construction of reels from the working drawings was begun in January, 1886, and finished, and the reels tested in March, 1886. The invention has not gone into public use.

CHAS. H. MORGAN.

Subscribed and sworn to before me, this second day of October, 1886.
[SEAL.] WM. R. CROSBY,
Notary Public.

In Interference.

CHARLES H. MORGAN
v.
F. H. DANIELS.

Reels for Wire Rods.

Supplemental Statement of Chas. H. Morgan.

COUNTY OF WORCESTER, *State of Massachusetts*, } ss:

CHARLES H. MORGAN, being duly sworn, says:

Being required by the official letter of Oct. 9, 1886, to amend my statement sworn to Oct. 2, 1886, in certain particulars, I state as follows:

I first disclosed my invention at the time when, as stated, I gave instructions to my draughtsmen to make working drawings, to wit, in March and April, 1879. The date "1878," on page 2, line
65 13, of my statement is a mistake, and through oversight I did not change it to "1879," as I should have done before executing said statement. The invention has been used only for experiment, and to an extent sufficient to demonstrate its efficiency.

CHAS. H. MORGAN.

Subscribed and sworn to before me, this thirteenth day of October, 1886.

[SEAL.] WM. R. CROSBY,
Notary Public.

In the United States Patent Office.

FRED. H. DANIELS
v.
CHARLES H. MORGAN.

Wire-rod coiling apparatus.

Interference.

Depositions of witnesses examined on behalf of said Charles H. Morgan, pursuant to the annexed notice, at the offices of Anthony Pollok, Esq., No. 635 F street northwest, Washington, D. C., beginning Friday, May 20, 1887, at eleven o'clock a. m.

Present: Anthony Pollok, Esq., on behalf of said Charles H. Morgan; Fred. H. Daniels, Esq., in person, and Marcellus Bailey, Esq., on behalf of said Daniels.

Deposition of Daniel C. Stover.

DANIEL C. STOVER, a witness produced on behalf of said Charles H. Morgan, being by me first duly sworn, in answer to questions

propounded by Anthony Pollok, Esq., of counsel for said Charles H. Morgan, deposes and says:

Int. 1. Please state your name, age, residence, and occupation.

Ans. My name is Daniel C. Stover; my residence is Freeport, Ill.; I am forty-seven years of age; and I am a manufacturer and inventor.

66 Int. 2. Are you the same Stover who made a certain invention in automatic reels described in a certain patent, No. 219,124?

Ans. I am.

Int. 3. State, if you please, what led you to make that invention, where were you when you made it, and when.

Ans. Some time in the month of October, 1878, I was called to Worcester, Mass., for the purpose of setting up and testing a machine for manufacturing barb wire. While there I had the privilege of looking around the shops of the Washburn & Moen Manufacturing Company, and saw then, for the first time, continuous rolls, or mills, for rolling wire rods. While in conversation with a party in the mill, who seemed to be a foreman, or man of authority, I asked him a number of questions pertaining to the mill. He told me, among other things, that the son of Mr. Morgan, who was superintendent of the Washburn & Moen Manufacturing Company, had had a limb taken off,—I think he told me one of his legs,—caused by the wire becoming entangled in his legs, and that several other accidents had also happened in connection with the reeling up of the rods after passing from the rolls. I asked him why some device was not used for picking up the wire immediately after leaving the rolls, and he assured me that this could not be done. I then set to work to invent some machine for this purpose, and perhaps in less than fifteen minutes after, I conceived the idea which is set forth in my patent, No. 219,124. This was in the afternoon of Oct. 26, 1878. After conceiving the idea, I went to the office of the superintendent, Mr. Charles H. Morgan, and told him of the ideas that I had conceived, but did not tell him what they were. He told me that this idea was not new; that others had worked at it. He seemed to think there might be something in it, and stated that I had made quite a success in other inventions, and it was possible that I might have something valuable. He suggested to me that I go into the draughting-room, and I think he stated that Mr. Daniels would assist me in making a draught, or that I might have access to the draughting tools, and might make it myself. I told him that I preferred to go to some model-maker and have a model made, as the machine was very simple, and it would cost but little. Also that I was afraid of mixing up my ideas with those of others. He gave me the

67 name of a model-maker which, I think, was Pollard. I went there on the morning of the 27th, and worked, or directed the workmen, in the construction of the model, and had finished it some time in the afternoon of the same day. I am able to fix these dates from a memorandum of an agreement made between myself

and the Washburn & Moen Manufacturing Company, bearing date the twenty-eighth day of October, 1878.

Int. 4. Please state what you did with the model, made as stated in your last answer.

Ans. The model was finished in the afternoon of the 27th of October, 1878, and I immediately took it to Mr. Morgan, and showed him the workings of the machine. I had procured some copper wire, which was very soft, and by this means could show its operation very nicely.

Int. 5. What, if any, means did that model have for removing the coil from the reel?

Ans. I had a perforated plate the full size of the face of the reel. Through these perforations the arms of the reel passed, and in connection with said plate I had a shaft which was attached to the centre of the plate and passed through the centre of the shaft of the reel and came in contact with a cam, which was attached to the farther end of the shaft from the reel. My idea was, to leave the reel run continuously, and have the speed of the arms of the reel to have about the same speed as the periphery of the last rolls of the mill, and when the rod was complete, or when coming to the end, the cam would be set in motion, which would throw the bundle off the reel, and when a bundle would strike the floor, its momentum would cause it to run some distance from the reel, and thus get it out of the way.

Int. 6. Was there any discussion between Mr. Morgan and yourself regarding your model? And if so, state the substance of it, as nearly as you can recollect it.

Ans. After I showed the operation of the model to Mr. Morgan, he asked me what I intended to do with it. I told him that as I had no wire mill, I had no use for it, and would like to sell it for $5,000. He seemed to think this was too much money; that it was making money pretty fast, to make $5,000 in a couple of
68 days. But I told him that was the best I would do at the time. He asked me to go with him to the office of Mr. Philip L. Moen; that Mr. Washburn was absent from town. Mr. Moen looked at the model, and very frankly said he thought it was a nice thing. He also asked Mr. Morgan, in my presence, if he thought it was a good invention. Mr. Morgan told him he thought it had some valuable features. Mr. Moen then wanted to know what I proposed to do with it, and I told him I would sell the invention for $5,000. He then asked Mr. Morgan if he thought it was worth this amount; and if so, to have papers made out, and pay me the $5,000.

Int. 7. Please look at the model which I now show you, and explain what it represents.

Ans. It represents a wire-coiling machine.

Int. 8. Does it represent the device that you invented, as already explained, in October, 1878?

Ans. It does, with the exception of the car attachment. This idea was suggested to me by Mr. Morgan, on the twenty-eighth day of October, 1878, I think, though I cannot say positively.

(Counsel for Morgan offers in evidence the model referred to by the witness in the last question and answer, and the same is marked "Exhibit Stover Model, E. L. White, notary public, D. C.")

Int. 9. In the conversations between Mr. Morgan and yourself, at the times you have indicated, did he explain to you any inventions of his own, in relation to automatic reels?

Ans. On Oct. 27 or 28, 1878, Mr. Morgan told me that he had been working at this same thing, and went into a side room from the office, where we were sitting, and brought out a model designed for the same purpose. This model had two reels, and had a hydraulic lift and other features differing from my invention. He suggested, or stated, to me that he thought my perforated plate could be used to good purpose on his machine. Otherwise, he thought his machine was better than mine.

Int. 10. Please look at the copy of United States patent No. 220,300, which I now show you, and state whether you recognize the drawings as representing the model referred to in your last answer.

Ans. I recognize this as the model.

69 Int. 11. Did he show you, at that time, any other models besides the one you have described?

Ans. My impression is that he did, but my mind is not clear enough to make any positive statement about it.

(Counsel for Morgan offers in evidence the copy of the patent produced and testified to by the witness in his answer to Int. 11, and the same is marked "Exhibit Stover Patent, E. L. White, notary public, D. C.")

Int. 12. Is there any difference between the directions of the axis of the reel as represented by your model, and that represented by Mr. Morgan's model, which you saw at this time?

Ans. There is the difference that one is horizontal and the other is vertical.

Int. 13. Do I understand you that Mr. Morgan spoke, at the time referred to in your answer to Int. 9, of applying your perforated plate to a vertical reel, such as shown in the Exhibit Patent?

Ans. My only recollection in the matter is, that Mr. Morgan stated to me that my device for discharging the bundle he thought might be used to a good purpose on his machine, the machine shown under patent No. 220,300.

(Ints. 10 to 13, and the answers thereto, are objected to by counsel for Daniels in so far as they may be taken to be inconsistent with Morgan's preliminary statement.)

Int. 14. For what purpose do you understand Mr. Morgan to contemplate using your perforated plate in connection with the reel shown in his last-mentioned patent?

(Question objected to, by the counsel for Daniels, on the same ground as above noted.)

Ans. For the same purpose that he uses his hydraulic lift, shown in the same patent, No. 220,300.

Int. 15. In exhibiting your model to Mr. Morgan and discussing the same with him, please state if any one else was present at any time; and if so, who?

Ans. I remember of Mr. Fred. H. Daniels being present on one occasion. I cannot say just when, but think it was when I showed my model.

70 Int. 16. Do you remember whether he made any comment in regard to that model?

Ans. I do not. My conversation was with Mr. Morgan almost exclusively.

Int. 17. Did he say that he had invented previously the same device, applied to a vertical reel?

Ans. I have no recollection of any statement that Mr. Daniels might have made to me.

Int. 18. If he had made such a statement, you would be likely to recollect it, would you not?

Ans. I can't say.

Int. 19. You referred to an agreement between yourself and the Washburn & Moen Manufacturing Company, dated Oct. 28, 1878. Have you a copy of such agreement? And if so, please produce it.

Ans. I have, and I herewith produce a press copy of the agreement.

(Counsel for Morgan offers in evidence the copy of the agreement produced and referred to by the witness in the previous answer, and the same is marked "Exhibit Stover Agreement, E. L. White, notary public, D. C."

It is stipulated and agreed, by and between the counsel for the respective parties, that the notary shall make and certify to a true and correct copy of the above agreement, and return the same with this deposition, in the place and stead of said press copy.)

Int. 20. I now hand you a photographic copy of a sketch and memoranda, contained in a sketch book put in evidence in this case on behalf of Mr. Daniels. Please look at such copy, and state if it recalls any conversation between yourself and Mr. Daniels; and if so, give its substance.

Ans. No, sir; it does not.

Int. 21. Do you recognize the sketch as an invention of your own, and was it patented at any time?

Ans. I recognize it as my invention, with the exception that I think my ideas then were confined to one reel only, while this shows two. I come to this conclusion from my model having only one reel. I may, however, have suggested two; but rather

71 think not, as I thought it best to have the reel run continuously. It was patented Feb. 24, 1880, and it is numbered 224,805.

(Counsel for Morgan offers in evidence the sketch produced and shown to the witness in Int. 20, and testified to by him, and the

same is marked "Exhibit Stover Sketch, E. L. White, notary public, D. C.")

Int. 22. Was any claim obtained by you in your patent, No. 219,124, for the movable plate for removing the coiled rod? and if not, give the reason.

Ans. I made application for such claim, or intended to do so, but was notified by the Washburn & Moen Manufacturing Company, or possibly their attorney, Mr. Thomas H. Dodge, that a patent had been allowed to one Prosser, of Pittsburg, Pa., numbered 206,197, and that I should proceed there immediately and secure the same, if possible; or if I could not get the entire patent, get an interest in it.

Int. 23. Did you succeed in obtaining an interest in the patent; and if so, when, and for whom?

Ans. I found the patent was assigned to Prosser and Lewis, Oliver and Phillips, of Pittsburg. I succeeded in obtaining from them a license to me, which I afterwards transferred to the Washburn & Moen Manufacturing Company. I learn from the records in the Patent Office that this license to me bears date of Nov. 18, 1878.

Cross-examined by Mr. BAILEY, of counsel for Daniels:

Cross-int. 1. How long were you in Worcester, on the occasion concerning which you have testified?

Ans. I cannot say positively, but I think it was about one week; at least long enough to set up a barb-wire machine and see it running nicely.

Cross-int. 2. When did you leave Worcester, on that occasion? State the date as nearly as you can.

Ans. I am unable to say; but think it must have been shortly after the agreement was made.

Cross-int. 3. How long after, to the best of your recollection?

Ans. From mere recollection, I cannot fix any date.

72 Cross-int. 4. Was it the next day, or the day after that? Let me have your best recollection on the subject, if you please.

Ans. I am unable to say. I went to Worcester frequently about this time, for the purpose of starting different barb-wire machines, and for righting any wrongs in them. I see, however, from a memorandum, that the date of license between Prosses and Lewis, Oliver and Phillips, before referred to, bears date of Nov. 18, and it must have been several days previous to this, at least, for I remember of being at home when receiving instructions from the Washburn & Moen Manufacturing Company, or their attorney, to secure the Prosser patent.

Cross-int. 5. When you left Worcester, on this occasion, did you carry with you the copy of the agreement which is in evidence?

Ans. I did.

Cross-int. 6. Please state whether the day on which you left Worcester, on this occasion, was before or after the date of execution of said agreement; that is, Oct. 28, 1878.

Ans. It was after said date.

Cross-int. 7. At what hotel were you stopping in Worcester, when you left that city, on the occasion referred to?

Ans. Lincoln house.

Cross-int. 8. You have stated that you had a certain conversation on Oct. 26, 1878, which led you to the invention shown in your letters patent 219,124, and others. Please inform me how you fix that date.

Ans. I am only able to fix the date from the memorandum of agreement existing between the Washburn & Moen Manufacturing Company and myself, as this agreement bears date of Oct. 28. Then I remember that it took the entire day, with the exception of a few hours, beginning in the morning, to make the model. I also remember that it was in the evening of the previous day that I had the talk with Mr. Morgan. In this way I conclude that the date of the invention was on the 26th of October.

Cross-int. 9. Who settled the details of the agreement between the Washburn & Moen Manufacturing Company and myself?

Ans. Mr. Morgan and Mr. Dodge and myself. Mr. Morgan took me in his carriage to the office of Thomas H. Dodge, attorney
73 for the Washburn & Moen Manufacturing Company, and we there agreed upon the details.

Cross-int. 10. On what day did he take you there for that purpose?

Ans. On the twenty-eighth day of October, 1878, the date of the agreement.

Cross-int. 11. And on what day was the agreement actually put into writing, and signed and executed?

Ans. On the same day.

Cross-int. 12. Isn't it possible that you might have made the model referred to a day or two previous to the day you have given in your direct examination?

Ans. Yes, sir; it is possible that I made it one day sooner than I have stated; but my recollections are that I have got it right. I wish to be very sure not to make it any earlier than it really was.

Cross-int. 13. You think, however, that it may have been the 25th, instead of the 26th, that you conceived the invention?

Ans. Yes. Mr. Morgan wanted me to refresh my memory in reference to this matter, which I have been trying to do for some weeks past, and I had at one time almost concluded that it was the 25th instead of the 26th, but now state that it was the 26th, to the best of my knowledge.

Cross-int. 14. I understand you to say that you are not sure you did not, in conversation, suggest such an apparatus as that shown in the paragraph marked "Exhibit Sketch," and that you may have done so. Am I correct in my understanding?

Ans. You are correct.

D. C. STOVER.

Sworn to and subscribed before me this twentieth day of May, A. D. 1887.

[SEAL.] E. L. WHITE,
Notary Public, D. C.

At this point further proceedings herein are, by consent of counsel, adjourned until tomorrow, Saturday morning, May 21, 1887, at ten o'clock.

[SEAL.] E. L. WHITE,
Notary Public, District of Columbia.

74 WASHINGTON, *May* 21, 1887.

Proceedings herein resumed, pursuant to the adjournment of yesterday.

Present: The same parties as before.

Deposition of Charles H. Morgan.

CHARLES H. MORGAN, a witness produced on his own behalf, being by me first duly sworn, in answer to interrogatories propounded by A. Pollok, Esq., of counsel for said Morgan, deposes and says:

Int. 1. Please state your name, age, residence, and occupation.

Ans. My name is Charles H. Morgan; my age is fifty-six years; my residence is Worcester, Mass.; and my occupation is a mechanical engineer.

Int. 2. Are you one of the parties to this interference?

Ans. Yes, sir.

Int. 3. You were recently general superintendent of the Washburn & Moen Manufacturing Company, were you not?

Ans. Yes, sir.

Int. 4. Give a general history of your connection with the company, and state what your duties have been.

Ans. In the year 1864 I made an engagement with Ichabod Washburn and P. L. Moen, of Worcester, Mass., copartners in the manufacture and sale of iron and steel wire, to act as superintendent or manager of their manufacturing. Some four years later a new company was organized with a capital of $1,000,000, and incorporated under the title of the Washburn & Moen Manufacturing Company, of which Mr. Washburn was president, and Mr. Moen was also an officer of the company. In the new company I still held the position of superintendent, or, as it was afterwards called, general superintendent. My duties as general superintendent made me responsible for all the manufacturing of the company, with authority to hire all employees engaged in manufacturing or construction, and to fix their compensation.

Int. 5. What was the growth, or development, of this company's manufacture under your management?

75 Ans. From employing about three hundred employees it has increased to the number of about three thousand five hundred within a year or two. The output has increased from ten to fifteen tons to upwards of two hundred tons per day. The horse power employed at first was about two hundred horse power, and has increased to upwards of four thousand horse power.

Int. 6. State what was the nature of your relations with the company, and whether or not you had the sole and exclusive management of the manufacturing department, and whether at any time there was any attempt at interference with your functions and powers on the part of any of the directors.

Ans. My relations with the company, for most of the time, and until within a few years, have been very pleasant, satisfactory and confidential. Within a few years after my engagement with the company they trusted so fully to my judgment in the planning and execution of large additions to their plant for manufacturing as to require to see but a brief outline of my plans. This confidence manifested inspired me with enthusiasm and interest in my work, which led me to devote not only time of business hours, but to take my plans home with me for study and perfection, and led me to employ my vacations chiefly in visiting wire works, manufacturing establishments of iron and steel in this country and abroad, in order to insure success in the manufacturing of the concern. I have had, most of the time, the sole and exclusive management of all employees in the construction of extensive buildings and large additions to machinery, which have been constructed by the employees of the company from plans made by draughtsmen under my direction. Within a few years past—say, three or four years—I noticed a tendency to make suggestions to my subordinates, which had the effect to impair the discipline of the organization, and to hinder the efficient and economical manufacture of the company's products. I made protest at various times in regard to interference with my functions and powers, until some time in February, 1885, a scheme was brought forward by Mr. E. S. Lenox, proposing changes in the wire-rod rolling carried on by the company. In this scheme I saw that certain inventions of my own were involved, which greatly increased my dissatisfaction, particularly when I found that the
76 directors, or some of them, had known of this scheme before, and had not communicated the same to me.

Int. 7. In consequence of this interference with your duties and functions, did you take any action; and if so, what?

Ans. I went to the president, Mr. P. L. Moen, and asked for a vacation, during which time I should be released from a certain contract with the company, which gave them the free use of any inventions I might make during the existence of the contract. He said he could not act for the board of directors. Later on, the request was entertained by other members of the board, and my request was refused, until finally, in the month of April, 1885, I tendered my resignation as general superintendent. I was informed by the directors that I was in honor bound to stay with the company for three months, unless released by the directors before the expiration of that time. To this I consented, with the verbal statement that I would do so, provided I should be released from the contract so far as related to inventions. At the end of the three months, or July 1, I left the employment of the company. In the interim I was re-elected a director of the company, an office I had held for some eight or nine years previously.

Int. 8. Did your connection with the company altogether cease in July, 1885, or did you at any time thereafter resume your former position? If the latter, state how that happened.

Ans. My connection was completely cut off from the company by my resignation, and leaving their employ. A new contract was entered into, dated Sept. 7, 1885.

Int. 9. Will you please produce the original, or a copy if you have it, of the contract that was entered into on Sept. 7, 1885, between the company and yourself?

Ans. I produce a true copy of the agreement of Sept. 7, 1885.

(Counsel for Morgan offers in evidence the copy of the agreement produced by the witness in his answer to the last interrogatory, and the same is marked "Exhibit Chas. H. Morgan, No. 1, E. L. White, notary public, D. C."

Counsel for Daniels does not admit that the paper here produced in evidence is such a copy as alleged.)

77 Int 10. During your administration under the new contract, what was the nature of your relations with the directors of the Washburn & Moen Manufacturing Company, and what were your experiences in regard to their management?

Ans. At first, my relations were pleasant, and I was confident that the old relations and the confidence shown me were re-established, until the spring of 1886, when I discovered I was mistaken. I made this discovery in the interference cases between Mr. Lenox and myself, it becoming evident to me that the directors were working against me to prevent my establishing my rights under the contract I had with them; and I became thoroughly convinced, when notified that I was put in interference in this present case with Mr. F. H. Daniels, and certain conversations I had with said Daniels. These discoveries that the company, as I believed, was seeking to prevent me from obtaining patents for my inventions, the interference with my rights, in addition to the labor and responsibility of my every-day duties, led me to the conclusion that I could no longer, satisfactorily to myself, hold the office of general superintendent of the company, and then, if I continued, I would probably break down in health; and I was advised by my physician, who had known me intimately for more than twenty-two years, to resign, which I did the second day of May, instant.

Int. 11. You spoke of an interference with Lenox. Will you, without going into any detail or matter which is of record in the Patent Office, state what that interference was?

Ans. It was in regard to rolling wire rods and a certain rod-coiling reel or mechanism. In regard to the rod-coiling mechanism, that was not shown in February, 1885, in the scheme referred to in my answer to Int. 6. The rod-coiling mechanism, or reel, I first learned of when an interference was declared between Mr. Lenox and myself.

Int. 12. Was that interference prosecuted on your behalf; and if not, why? State, very briefly, the circumstances.

Ans. It was not prosecuted; and on discovering the opposition

of the directors I relinquished it, and it finally resulted in my putting in the Patent Office a letter of protest, and the patents were issued to Mr. Lenox.

Int. 13. Have you a copy of that protest? And if so, please produce it and annex it to your deposition.

78 Ans. I have such a copy, and I now produce it.

(Counsel for Morgan offers in evidence the paper above produced and referred to by the witness, and the same is marked "Exhibit Chas. H. Morgan, No. 2, E. L. White, notary public.")

Int. 14. By the way, what has become of that Lenox scheme, or invention, which was the subject of the interference?

Ans. Machinery was made to test the value of the inventions set forth in the interference cases, and the machinery was tested for the production of wire rods about a year ago. The trials were made under the supervision of my then assistant, Mr. F. H. Daniels, the same as interested in the present case. The trials were not satisfactory. Part of the machinery has been removed from the building, to give room for the ordinary operation of rolling wire rods.

Int. 15. Did Mr. Daniels make a report to you of the workings of the Lenox scheme; and if so, will you produce the same, or a true copy thereof?

Ans. He did, and I produce a true copy of the report.

(Counsel for Morgan offers in evidence the report produced and referred to by the witness in his last answer, and the same is marked "Exhibit Charles H. Morgan, No. 3, E. L. White, notary public, D. C."

Counsel for Daniels objects to the paper, unless the original be produced, or its absence accounted for.)

Int. 16. What has become of the original report of Daniels?

Ans. The last I knew of it, it was in my desk at the works of the Washburn & Moen Manufacturing Company, and I had a copy made to preserve for reference.

Int. 17. Then I understand you to say you left the original with the papers of the company?

Ans. Yes, sir.

Int. 18. During the pendency of this interference between Daniels and yourself, what was your situation at the Washburn & Moen Manufacturing Company's Works, and your relations with the directors and your subordinates?

Ans. This interference rendered my situation and relations with the directors and my subordinates more unpleasant, and put me in antagonism with Mr. Daniels, completely destroying the

79 confidential relations which had existed in former years, so that I did not consider it safe to discuss plans for improvement which might involve patentable inventions, and made it necessary for me to have such plans made by a private draughtsman, away from the company's works.

Int. 19. In this interference, were you not antagonized by the directors of the company?

Ans. I was.

Int. 20. State how, and in what manner.

Ans. Mr. Daniels stated to me that he had no desire to prosecute this interference. He desired to have it settled—he would not have applied for a patent had he known that I had made such application; and that Mr. Washburn, one of the directors, had called him to his office and asked him if he did not have to do with the getting up of the reeling device now in interference. That Mr. Washburn urged him to make an application for a patent.

Int. 21. Which Mr. Washburn?

Ans. Mr. Charles F. Washburn.

Int. 22. In your answer to Int. 18, you have stated that you found it necessary to have the plans for improvements made away from the company's works, by a private draughtsman. Will you now say whether those plans were for the benefit of the company, and whether such private draughtsman was paid by the company?

Ans. My private draughtsman has made drawings of which the company has had the benefit, and he has been paid by myself.

Int. 23. Being paid by yourself, do you mean to say, out of your own funds?

Ans. Yes, sir.

Int. 24. What was the part taken by the directors of the Washburn & Moen Manufacturing Company in the conduct of the present interference?

Ans. They have manifested very great interest in it, requiring Mr. Daniels to leave his ordinary duties to give much time to the case, not seeming to spare expense or pains in the matter, he, Mr. Daniels, having at times left his business without notifying me or asking my consent to his absence. Every facility for obtaining facts and data have been freely given to him.

Int. 25. Was and is it not generally understood, at the
80 works, by your late subordinates, that this interference is r-ally between the company and yourself?

(Counsel for Daniels has hitherto refrained from interposing an objection to the examination of this witness, although the use of this record for the purpose of airing grievances, whether real or fancied, is unwarranted; but he is constrained to interpose an objection to the foregoing question, which is manifestly improper.)

Ans. Yes, sir; I so understand it.

Int. 26. Did you not receive orders from the president of the company, in his official capacity, to afford certain facilities to Mr. Daniels to prosecute this interference to his advantage?

Ans. I did, by a letter addressed to me, that I should extend the time for hearing, that he might have time to hear from a party in Europe.

Int. 27. You know, do you not, Mr. Stover, the witness produced on your behalf yesterday? State how long you have known him.

Ans. I do know him, and have known him since October, 1878.

Int. 28. Will you state the circumstances which attended your making Mr. Stover's acquaintance, and state everything that took place at the time?

Ans. Mr. Stover had invented and made a machine for barbing fencing wire, and the machine was put upon trial at the company's works during October, 1878, Mr. Stover being present to conduct the trial. It was my duty to afford him facilities for making the trial, and also my duty to form an intelligent judgment of the value of his machine as compared with other machines which the company had in operation for the same purpose. This made me acquainted with Mr. Stover. During this month he came to me and stated substantially that he had an improvement for coiling wire rods, and made a partial description of his plan. Within a day or two he brought a model to the works, showing his invention, which has been patented, and numbered 219,124. I discovered a valuable feature in this model, and negotiated with him for the company to have the benefit of this invention. This negotiation was completed, and an agreement made by which the company should have the benefit of this invention.

81 Int. 29. What was that valuable feature referred to in your last answer?

Ans. It was a device for discharging the completed coil of wire rod from the reel, consisting of a disk attached to a shaft extending through the axis of the reel, which could be pushed forward by the action of a cam, effecting the discharge of the coil.

Int. 30. When Mr. Stover showed you and explained to you his invention, did you tell him what you thought of it, and give him your reasons therefor?

Ans. My remembrance is, that I told him that I could use this discharging device in connection with a reel which I had invented, and of which I showed him a model.

(Objected to by counsel for Daniels, in so far as the answer may be taken to antedate the date set up in the preliminary statement of this witness.)

Int. 31. Please state what the reel was to which you proposed to apply this movable plate, or discharging device, and if it is shown in any of your patents, please refer to the same by number and date.

(Same objection.)

Ans. The model illustrated in the letters patent 220,300 was shown to him at that time; also the model illustrated by letters patent 224,941, Feb. 24, 1880.

Int. 32. What, if any, steps did you take towards acquiring Mr. Stover's invention of a discharging device for the use of the company?

Ans. I negotiated with him for the assignment of the patent to the company, on condition that he should be paid a certain royalty for the use of his invention. Said negotiations were completed by an agreement between Mr. Stover and the Washburn & Moen Manufacturing Company. Said agreement was signed by Mr. Stover and by myself, representing the company. The agreement and patent papers were prepared by the company's attorney, Mr. Thomas H. Dodge.

Int. 32½. Who, if any one, did you consult in regard to the negotiation with Mr. Stover?

Ans. I am confident that I consulted with Mr. Moen, the president of the company.

82 Int. 33. Please look at the Exhibit Stover Model, and state what it represents.

Ans. All above the upper platform represents Mr. Stover's invention, as set forth in patent No. 219,124.

Int. 34. What is the portion below the platform, whose device is it, and when was it devised?

Ans. About the time Mr. Stover made his model and brought it to me, I had a model like this made, a model of which this is a copy, and showed it to Mr. Stover.

Int. 35. Please give the dates when your conversations with Mr. Stover took place, and state how you are able to fix the same.

Ans. My conversation regarding Mr. Stover's invention took place on the twenty-eighth day of October, 1878, and a day or two prior to that day. I fix the same by the copy of the agreement with Mr. Stover, introduced by him in this case.

Int. 36. In your preliminary statement in this interference you say that you conceived the invention in controversy "about the months of March and April, 1879." Please state how you fixed the dates there given, whether or not the same are correct, and if not, how the mistake came to be made.

(Objected to by counsel for Daniels as immaterial. The rules and decisions of the Commissioner of Patents prescribe when and where the explanation, as well as the correction, of such a mistake, if any there be, shall be made.)

Ans. I fixed the date given by working drawings, which I found in the files belonging to the company. I could not find original sketches, nor all of the working drawings. I was impressed that I could fix an earlier date, if I could have found such sketches and papers as I knew must have been made.

Int. 37. How and under what circumstances did you come to ascertain that the conception of the invention in controversy by you was prior to the date given in your preliminary statement?

(Same objection by counsel for Daniels.)

Ans. I have become convinced during the hearing in this case of Mr. Daniels's testimony, when he produced a sketch book, in which was a memorandum of a conversation between Mr. Stover and myself, at which he, Daniels, states in the memorandum he was

83 present. I became certain of it, after meeting Mr. Stover yesterday morning, the 20th, when he produced the copy of the agreement; and in looking over with him models which have been referred to in the Patent Office, he volunteered the statement that he remembered my stating to him that I could use his discharging device in connection with one of the reels which I showed him in Worcester, in October, 1878, heretofore referred to; and also in examination of the records of assignment, I saw a record of a

license from John Prosser to the Washburn & Moen Manufacturing Company, to use his invention shown in patent No. 206,197, which invention was entitled "A machine for coiling wire," having a discharging device somewhat similar to the discharging device shown in the Stover model heretofore referred to. This conversation and these papers refreshed my memory, and made me certain of what took place in October, 1878, in regard to the Stover invention, and my conversation with him at that time about this discharging device.

Int. 38. What was there about the Prosser patent that the Washburn & Moen Manufacturing Company desired to use?

Ans. The discharging device, without which the invention or patent would be of no value.

Int. 39. What was the date of the Prosser license, which you say you examined yesterday in the records of the Patent Office?

(Objected to by counsel for Daniels as immaterial.)

Ans. Nov. 18, 1878.

Int. 40. Prior to examining the record, what was your recollection with regard to the date of such license?

(Same objection by counsel for Daniels.)

Ans. Having the Stover patent, No. 219,124, in my possession, which shows that the application was filed Feb. 24, 1879, and knowing that Stover's claim for the discharging device was refused in the Patent Office, by a reference to Prosser's patent, I came to the conclusion that the license was obtained after this application for Stover's patent was made; having forgotten the facts in regard to the agreement with Stover in October, 1878.

Int. 41. Since the declaration of this interference, when were you for the first time reminded of the agreement of Oct. 28, 1878?

(Same objection by counsel for Daniels.)

84 Ans. Yesterday morning.

(Counsel for Morgan gives notice that he will suspend, for a short time, the examination of this witness, and produce Mr. Philip Mauro, a witness on behalf of said Charles H. Morgan.)

Deposition of Philip Mauro.

PHILIP MAURO, a witness on behalf of said Charles H. Morgan, being produced and duly sworn, in answer to questions propounded by A. Pollok, Esq., of counsel for Morgan, testified as follows:

Int. 1. State your name, age, residence, and occupation.

Ans. My name is Philip Mauro; my age, twenty-eight years; my residence, Washington, D. C.; and my occupation, attorney-at-law.

Int. 2. State, if you know, who prepared the preliminary statement for Morgan in the matter of the interference between the applications of Charles H. Morgan and Fred. H. Daniels, for improvements in reeling devices.

Ans. Mr. Morgan's statement was drafted by me some time in September last. I had before me, at the time, a number of letters from Mr. Morgan relating to this interference, and from these letters I obtained the data for the statement, so far as it was prepared in my handwriting. I recollect that I wrote into the statement the year following the statements of conception, reduction to practice, etc., leaving the days and months to be written in by Mr. Morgan himself. I further recollect that I wrote the year 1878 as the year for the conception of the invention, and that when the statement was returned to me for filing, the year 1878 had been erased and 1879 substituted therefor. After this statement had been filed and opened by the examiner of interferences, it was noticed that on page 3 of the preliminary statement, line 13, reference was made to the reel "that I had invented in 1878," Mr. Morgan not having, in this place, made the change from the year 1878, as had been done on the first page. In consequence of this, in preparing a supplemental statement this mistake, or oversight, was pointed out and explained.

Int. 3. What made you put into the statement the date 1878, when you originally drafted it?

85 Ans. The information I had from Mr. Morgan was that this invention had been made by him in 1878 or 1879, but I had no information as to the precise dates; consequently, after referring to the conception of the invention, I left a blank for the month and day to be inserted by Mr. Morgan as nearly as he could fix them, and wrote myself the year 1878.

Int. 4. Is the original statement, with the alterations from 1878 to 1879, on file in the Patent Office?

Ans. Yes; it is.

Cross-examined by Mr. BAILEY, for Daniels:

Cross-int. 1. How did you obtain the information referred to in your answer to Int. 3; by word of mouth, or by letter?

Ans. By letter entirely.

Cross-int. 2. Have you those letters in your possession?

Ans. I have not. The letters referred to were letters written and addressed not to me, but to Mr. Pollok, counsel for Morgan in this case.

Cross-int. 3. How came you to prepare the statement?

Ans. I was at the time temporarily in charge of the business of Mr. Pollok, he being absent from the city.

Cross-int. 4. In what business relation do you now stand to Mr. Pollok?

Ans. I am employed by him in the general capacity of assistant in the conduct of his professional duties.

Cross-int. 5. Where are the letters referred to, if you know?

Ans. They are now filed away in their appropriate place in Mr. Pollok's office.

Cross-int. 6. You mean in these offices where this examination is going on?

Ans. Yes, sir.

Cross-int. 7. Can you procure those letters, and will you do so?

Ans. It would be physically possible to procure them, but as the letters are not mine, and in no way concern me, I should not have the right to appropriate them for any purposes of my own, or of any one else, other than Mr. Morgan and his counsel.

86 Cross-int. 8. Mr. Pollok is here present, and if he is willing that you should produce the letters, will you do so?

Ans. If Mr. Pollok deems it proper to put the letters in evidence, he will doubtless do so.

Cross-int. 9. Now please answer my question?

Ans. Certainly. I will produce them, if Mr. Pollok is willing.

(Counsel for Daniels requests counsel for Morgan to permit the witness to produce all such letters as those referred to by him in his deposition.

Counsel for Morgan states that he had never seen the letters referred to until this moment. They were received during his absence from this office, and he has never had occasion to refer to them. He will examine them as speedily as possible, and submit such portions of them as may relate to the subject of this inquiry in regard to the changes in the preliminary statement.

In order that there may be no misunderstanding, counsel for Daniels states that what he asks for, and what he is entitled to, is all the written information had from Mr. Morgan, by the representative of counsel for Morgan who prepared the preliminary statement, which led that representative to put into the statement the date 1878, when he originally drafted it.)

At this point the further taking of this deposition is, by consent of counsel, adjourned until Monday morning, May 23, 1887, at ten o'clock, at the same place.

[SEAL.]

E. L. WHITE,
Notary Public, District of Columbia.

WASHINGTON, *May* 23, 1887.

Deposition of the witness, Philip Mauro, resumed, pursuant to the adjournment of Saturday.

Present: The same parties as before.

(Counsel for Morgan, although deeming the challenge for the production of privileged communications, particularly those between counsel and client, highly improper, and in view of the character of the witness and the nature of the testimony, entirely uncalled for, nevertheless instructs witness to refer to the files

87 and obtain all the letters of Mr. Morgan written from the inception of the interference to the time of filing of the preliminary statement.

The witness produces four letters, and the same are marked respectively "Exhibit Morgan Letters Nos. 1, 2, 3, and 4," and says:

These letters are produced from the files of this office of papers relating to the interference case of Daniels *v.* Morgan, where they have been ever since they were received.

Cross-int. 10. Do these letters which have just been marked in evidence, comprise all the information referred to in your answers to the third direct interrogatory and the first cross-interrogatory?

Ans. They do.

Cross-int. 11. I understand that in the preliminary statement which you prepared and forwarded to Mr. Morgan for execution by him, you, in referring to the conception of the invention, wrote the date 1878, and left a blank for the month and day?

Ans. That is right.

Cross-int. 12. So that at the time the statement left your hands, it contained, with reference to the conception of the invention, only the year 1878, and nothing else?

Ans. That is my recollection.

Cross-int. 13. I hand you the original preliminary statement of Mr. Morgan, in this interference, on file in the Patent Office, and which has been placed by the Commissioner of Patents in the custody of the notary for the purpose of this examination, and request you to indicate on what line you placed the date and left the blank in question.

Ans. The date appears to have been placed on the eighteenth line of the first page, and the blank was on the same line.

Cross-int. 14. On that line there appears to have been an erasure where the words "and April" now appear. Do you know what was there written originally?

Ans. From recollection, I could not state what had been there written originally; but from inspection of the paper, I should say that under the word "and" had been written the year 1878, and erased. That is all I can make out from an inspection of the paper.

Cross-int. 15. On line 19, also, of the same statement, there seems to have been an erasure, for that portion of the line covered
88 by "1879," and the dash following it. Do you know what was erased there?

Ans. The words "following year" appear with tolerable distinctness under the dash. I think the words under figures "1879" were "and the."

Cross-int. 16. Did you make the erasures on lines 18 and 19 of the statement?

Ans. I did not.

Cross-int. 17. Do you know who made them?

Ans. I do not.

Cross-int. 18. Is your testimony concerning these erasures based upon your recollection of what was written there originally?

Ans. I have already said that from recollection I could not state. My answers were expressly based upon my present inspection of the paper.

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Ans. It would be physically possible to procure them, but as the letters are not mine, and in no way concern me, I should not have the right to appropriate them for any purposes of my own, or of any one else, other than Mr. Morgan and his counsel.

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Ans. I did not.

Cross-int. 17. Do you know who made them?

Ans. I do not.

Cross-int. 18. Is your testimony concerning these erasures based upon your recollection of what was written there originally?

Ans. I have already said that from recollection I could not state. My answers were expressly based upon my present inspection of the paper.

Cross-int. 19. Do you know who inserted the words and figures "March and April, 1879," in lines 18 and 19?

Ans. I was not present when these words were inserted, and therefore do not know.

PHILIP MAURO.

Sworn to and subscribed before me, May 23, A. D. 1887.

[SEAL.] E. L. WHITE,
Notary Public, District of Columbia.

Deposition of CHARLES H. MORGAN resumed:

Int. 42. In the applications in interference the title given to the invention is "Reeling mechanism for wire-rod rolling mills and for coiling wire rods." The term "automatic reel" has also been used in connection with these inventions. Will you please state what is understood by automatic reels, and whether that term properly applies to the invention in controversy?

Ans. What is understood by an automatic reel is one so constructed and arranged in combination with a rolling mill that as the rod issues from the finishing rolls of the mill it is conducted and engaged to the reel entirely by mechanical means; and such a reel is the subject of this interference.

89 Int. 43. Wherein does it differ from ordinary reels?

Ans. Ordinary reels are located at a considerable distance from the rolling mill. As the finished rod issues from the mill it is distributed in loops over the floor of the mill by an attendant. The end of the rod is seized with a pair of tongs, by an attendant, and engaged by him with the reel. Such a reel is operated by another attendant, to coil up the rod by turning a crank by hand, or by the application of power from a steam-engine or other source.

Int. 44. State, briefly, what are the advantages, if any, which attend the use of automatic reels as compared with the use of ordinary reels, such as you have just described.

Ans. The advantages are, that the mill may run at a much higher rate of speed, and making it profitable to produce rods of smaller section than can be economically produced with a mill using the ordinary reel described. An additional advantage is, that the automatic reel, so far as it has been perfected, is much safer for the workmen employed about the mill.

Int. 45. State, if you know, when automatic reels were first used, or attempted to be used, in the arts, and where.

Ans. I do not know of any attempt earlier than attempts made by myself in the works of the Washburn & Moen Manufacturing Company, in the autumn of 1879. My remembrance is, that the first attempt was made with the reel which was patented Feb. 24, 1880, No. 224,787.

Int. 46 When was that first attempt made?

Ans. My remembrance is, that it was in the autumn of 1879.

Int. 47. Give me an outline of the progress and development of

the automatic reeling of wire rods from the time it was first attempted to the present day.

Ans. Later in the year 1879, I think, in December, a reel was tested, which had most of the elements in the reel now in interference. The reel used at this trial had a hollow vertical shaft, on the upper end of which was fastened a disk. On the outer edge, or periphery of the disk, was an upright rim, with ribs on the inside, attached thereto, nearer the centre of the shaft; and about six inches from the periphery, having ribs, was a row of upright
90 pins. This reel was provided with another disk or platform attached to a shaft which was inserted and projected through the shaft of the reel; at the lower end thereof was a hydraulic cylinder and piston, for lifting the last-named platform to a position above the top of the rim and pins attached to the lower platform, and also a piston for applying a brake to the reel. Between the outer rim and this row of pins the wire rod was coiled as it issued from the finishing rolls of the mill, conducted through a pipe which guided it to the reel. The operation was somewhat like pouring a fluid into a revolving tub. The operation of reeling was complete and satisfactory, but when the attempt was made to stop the reel and remove the finished coil of wire, the arrangement was such that in the attempt to stop the reel, the lifting platform would rise up to its upper position, and when a brake was applied to arrest the motion of the reel, the rod had so much momentum as to distort it, spreading it out over the reel, making it very dangerous to the attendants. There having been serious accidents with ordinary reels, the workmen were naturally timid, and afraid lest they should be burned and seriously injured by these reeling experiments. Seeing this defect and others in this reel, and the demand for wire rods being very pressing at the time, these experiments were discontinued and the reel set one side.

Int. 48. My question calls for a history of automatic reels from the beginning of any attempt to use them. Your answer assumes that the question calls for attempts from later in the year 1879. Will you please give me a statement of what had been done by you or by others, in the way of automatic reeling, before 1879?

Ans. I do not recall any attempts to use them prior to the autumn of 1879.

Int. 49. I hold in my hand an official copy of a patent issued to you on the 7th of October, 1879, application therefor having been made on the twenty-second day of January, 1879, for an improvement in reeling mechanism for rod-rolling machines. Please state what that is, and whether such reeling mechanism was ever used, and when and where.

Ans. Parts of the invention shown in patent No. 220,300 were used in a trial with the invention patent No. 224,941, but not earlier than 1879.

91 Int. 50. When was the invention, for which patent 220,300 was issued, made by you?

Ans. Most of it during a journey made between May 10 and July 1, 1878.

Int. 51. Which part of it?

Ans. The reeling part of it. There were modifications of the discharging device made after the journey referred to.

Int. 52. Were there ever any working drawings made of the reeling device; if so, when, where and by whom? And if you have a copy of such drawings, produce them.

Ans. There were drawings made for the construction of a model on July 3, 1878. This drawing was made at the works of the Washburn & Moen Manufacturing Company by George H. Scott, who also made the model. I would say that this drawing shows two reels. It shows two reels in one framework: one as shown in the patent 220,300, and the other the reel as shown in the patent 224,941, issued to me.

(Counsel for Morgan offers in evidence the drawing referred to by the witness in the last preceding answer, and the same is marked "Exhibit Charles H. Morgan No. 4, E. L. White, notary public, D. C.")

Int. 53. Was this drawing made by George H. Scott under your direction?

Ans. It was, solely.

Int. 54. Point out the features which the reel, drawn by George H. Scott, under your direction, has in common with the reel now in interference.

Ans. This drawing shows a reel with a hollow upright shaft, with another shaft inside it and extending through it; this last arranged to have motion in the direction of its axis. It also shows a conical brake disk and a stationary corresponding brake disk attached to the frame. This drawing also shows a reel having a double row of arms, or pins, between which the wire rods were to be coiled, as shown in patent No. 224,941.

Int. 55. What additional feature or features would be required to render this reel the same in substance as the invention in controversy?

92 Ans. A lifting device to bring the finished coil above the top of the pins of the reel, so that it might be readily removed from the reeling machine by an attendant. A lifting device was proposed by myself, and shown in patent 220,300, and operated by hydraulic pressure.

Int. 56. The invention in controversy includes, does it not, a movable plate, or platform, mounted on a shaft concentric with the reel shaft? What suggested to you the application of such a plate, or platform, to a vertical reel, such as is described in your patent last referred to?

Ans. The model of Mr. Stover, shown to me in October, 1878, had a discharging device which gave me the suggestion. The construction of this model is shown in patent No. 215,124.

(Objected to by counsel for Daniels as inconsistent with the preliminary statement of this witness.)

Int. 57. What steps, if any, did you take towards the preparation of drawings representing a vertical reel with its movable platform? and give the dates.

Ans. In the spring, I think, in March, 1879, I gave directions to Mr. F. H. Daniels to make drawings for a reel with a lifting platform, operated by a hydraulic cylinder and piston.

Int 58. State whether such drawings were prepared, and if so whether or not they were prepared under your direction and supervision.

Ans. Such drawings were made under my direction, supervision, and chiefly in accordance with my design.

Int. 59. Have you a copy of such drawings; and if so, will you produce the same?

Ans. Yes, sir; I have a copy in my hands.

(Counsel for Morgan offers in evidence the drawing produced and referred to by the witness, and the same is marked "Exhibit Chas. H. Morgan No. 5, E. L. White, notary public, D. C.")

Int. 60. You have stated that the original of this drawing was prepared chiefly from your designs. Please point out such feature or features therein shown as were not designed by you.

Ans. In the hydraulic mechanism for lifting the finished rod above the pins of the reel, and for stopping and starting the
93 reel, it will be observed that there are two pistons, one inside the other, both supplied with pressure from one pipe. This feature, of combining two cylinders and pistons in one, and operating the same by a single valve and pipe, were suggested by Mr. Daniels, and adopted by myself.

Int. 61. Have you stated all the features shown in that drawing that are not of your own design?

Ans. I think I have.

Int. 62. Referring to the combination shown in that drawing of a reel mounted on a vertical shaft, and a lifting platform also on a vertical shaft, state whether or not you solely designed the same.

Ans. I did, with the exception spoken of in my previous answer.

Int. 63. Was the reel made and tested, as you have said, in the autumn of 1879, the reel shown in the drawing?

Ans. Substantially, yes.

Int. 64. At the conclusion of those tests, was anything further done towards experimenting with this kind of reel?

Ans. No, sir; not for quite a number of years.

Int. 65. Why not?

Ans. The demand for smaller rods was then met by an invention termed "salt coating," which enabled the company to reduce rods of the ordinary size without the expense of annealing, cleaning and coating, as had been necessary before the introduction of this salt coating referred to, and it was also evident to me that the plan for the reel must be changed, in order to make it successful and safe for the workmen.

Int. 66. State whether you were able to give such study to the question at that time; and if not, explain why.

Ans. I was not able, owing to the pressure or demand for other machinery required by the company.

Int. 67. Why did you not apply for a patent on this invention at that time?

Ans. I had already had a model and drawings made for the reel without the lifting device now in controversy; and it did not, at that time, seem to me a patentable invention to turn up the device shown in the Stover model, heretofore referred to, ninety degrees, or to work in a vertical direction.

94 Int. 68. Were you aware, at that time, that the company owned Mr. Stover's rights, and had a license under the Prosser patent?

Ans. I was fully aware of the fact.

Int. 69. Do you know whether or not the Prosser patent has any claim covering the discharging device or stripper?

Ans. It has.

Int. 70. When did you next take up the subject of automatic reels, having a lifting platform, and under what circumstances?

Ans. In the year 1885 there was a demand for smaller wire rods, and in the latter part of the year, or the first part of 1886, I had drawings made up for an automatic reel, which were completed and tested in the month of March, 1886. These reels,—there were a pair of them,—worked much better than any reels that we had made trial of before. At this time we had under construction a rolling mill for testing the question of rolling rods to a certain size, coiling, rerolling in a supplementary mill, which was termed at the works, the Lenox system. This automatic reel, which was tested in March, after a short trial was removed from the mill building called No. 2, and some slight changes made in it, when it was put into mill building called No. 1, where a trial was made of the so-called Lenox system, and a further trial of this same reel was made about the month of May, 1886. About this time another pair of reels were made, and put into the building called No. 2 mill building, and were tested in July, the 28th of July, according to a memorandum which I have. This trial was witnessed by many persons besides the regular mill operatives. This last pair of reels had a safety device attached which we called a guard or cage, made strongly of wrought iron, and made to completely surround the reels, for the protection of the workmen. These last reels, with slight modifications, were in use the last time I was in the rolling mill.

Int. 71. What was the result of the trial of the first pair of reels in the mill building called No. 1, referred to in your last answer?

Ans. Those were satisfactory.

Int. 72. Were those reels prepared solely from your own designs?

Ans. With the exception of slight details.

95 Int. 73. Did they have any spring or clutch mechanism invented by Mr. Young, or any one else?

Ans. They did have a spring, which was, however, invented many years before, and used upon looms. Mr. Young did make a suggestion to use this spring in the machine, which was adopted by me.

Int. 74. Do you speak now of the first pair of reels as tested in No. 1 building?

Ans. No, sir.

Int. 75. Answer Int. 73 with reference to the first pair of reels tested in the No. 1 building.

Ans. My remembrance is that they were tested in the No. 1 building with a driving clutch mechanism known as the Weston clutch.

Int. 76. In the 1879 reel, why was it that the lifting platform would rise to its upper position before the reel had come to rest, as stated in your answer to Int. 47; and what, if any, measures were adopted to cure this defect in the operation of the 1886 reels?

Ans. Because the hydraulic pistons were arranged to be worked from water supplied by one pipe and valve. The twisting of the wooden frame prevented the brake clutch from operating as was designed, so that the lifting platform was raised before the reel came to rest. This proved to be dangerous with the ordinary-sized coil. When for any reason, as often happened, a short rod would be reeled, this difficulty would be aggravated. In the reels tested in 1886 separate hydraulic apparatus was provided for stopping and starting the reel and for operating the lifting platform, substantially as shown in my application for a patent now in interference.

Int. 77. How long have you known Mr. Fred. H. Daniels, a party to this interference, and how did you become acquainted with him?

Ans. I have known him for about eighteen years. My remembrance is, that I saw him with his father frequently about eighteen years ago, and from that time on until he was a student in the Worcester Free Institute of Industrial Science. His father had sold building material to the Washburn & Moen Manufacturing Company, and it was my business to negotiate for the purchase. His father and myself were engaged in a building enterprise by
96 which we became more intimately acquainted, and I came to esteem him very highly. On that account I first became interested in the success of Mr. F. H. Daniels as a student, frequently making inquiries as to his progress in my frequent visits to the school in pursuance of my duty as one of the trustees of this school, and charged with the especial duty of looking after the workshop department of this school. I did not receive very favorable reports of Mr. Daniels's progress in the school, and when he graduated he was below the average of his class. But in the last work which he did, and especially a drawing which he made, called the "thesis drawing," which was a copy of a marine engine drawing, I saw sufficient merit in the drawing so that I determined to make a trial of him as a draughtsman. This was in the summer of 1873. Within a short time I made an engagement with him, and he made,

under my direction, various drawings of machines already constructed and some which I designed. In the last part of 1873 and in 1874 business became very dull, so that early in 1875 the directors of the company required very great economy to be used, and asked me if I could not do without a draughtsman. I replied, "Yes, if we do no more building and construct no more new machinery." The result was that Mr. Daniels left the employ of the company on this account, I think, in the early summer of 1875, and was employed by me part of the time that summer as a private draughtsman, working at my house. During the summer I advised him to make a study of the metallurgy of iron and of the chemical analysis of the same. He took my advice and began his study at the Technical school, spending part of the time in such study, and part of the time at my house, making drawings, for which I paid him from my own funds. About this time, or late in the summer, I learned that Dr. Thomas M. Drown——

(Counsel for Daniels is much disinclined to interrupt the witness in this interesting recital, but he feels impelled, at this point, to interpose an objection to this answer, as wholly irrelevant and immaterial.)

—at that time secretary of the American Society of Mining Engineers, who had had his laboratory in Philadelphia, and was considered the best iron chemist in the country, and whose work or analysis was much sought after, was about to go to Lafayette
97 college to act as a professor of chemistry, in a new building lately constructed, called Pardee hall. I suggested to Mr. Daniels that this would give him an excellent opportunity to pursue his studies in the metallurgy and chemistry of iron, and offered to see Dr. Drown in his behalf, which I did, later on, meeting him at Pardee hall, and enlisting his interest in Mr. Daniels, which resulted in Mr. Daniels going there and having a position assigned to him which gave him a dormitory-room free, also the use of chemicals and apparatus which ordinary students had to pay for. Mr. Daniels continued until the summer of 1876, when he wrote me expressing a desire to return to service under me. I replied that I would be coming to Philadelphia to attend to some duties in connection with the Centennial Exhibition, and made an appointment to meet him in Philadelphia, which resulted in my engaging him to act as a chemist for the company, under my direction, which position he filled till the summer of 1877, when he went with me and a part of my family on a journey to Sweden. During all this time our relations were most intimate and friendly, and I could not have done more for one of my own sons. He had the freedom of my house. When it became necessary that I should leave home for some days, and my wife was timid about being left alone with young children, he came to my house to spend the nights during my absence. While in Sweden, as referred to above, he desired to carry his investigations in the metallurgy of iron still further, and urged me to use my influence so that he might stay at one of the principal iron works for that purpose. The principal manager, Mr.

Carl Danielson, had been in this country and had stopped for some time at my house, and our relations had become very friendly. I made the attempt, and secured the chance Mr. Daniels desired, for him to remain at the works for some time under Mr. Danielson's charge. Mr. Daniels was away from the employ of the company for about ten months, when I made a re-engagement of his services, and within a few days went to Europe to look up the progression of the art of wire-rod rolling. Just before sailing, in a conversation with Mr. Charles F. Washburn, I expressed a desire to have Mr. Daniels follow me in the next steamer, so that I might
98 have company and assistance, so that I might make a shorter journey. We went through various rod mills in France, Germany and England, returning July 1, 1878; when I directed Mr. Daniels, giving him outlines of plans for the construction of a new rod mill which I had made a special study of during the journey.

Int. 78. Was the employment of Mr. Daniels by yourself made upon the recommendation of Professor Thompson?

Ans. I have no remembrance that he made any recommendation.

Int. 79. Do you know who paid the expenses of Mr. Daniels on his first trip to Europe?

Ans. I paid for his ticket over and back. That is my remembrance.

(Counsel for Daniels objects to the foregoing question and answer as irrelevant and immaterial.)

Int. 80. Please describe Mr. Daniels's duties and his relations to yourself from July 1, 1878, through that and the following year.

Ans. His duties through that year and the following year were as a draughtsman, entirely under my direction, and responsible to no one else but myself, his compensation fixed by myself. He had the direction of other draughtsmen in the employ of the company during my absence, and our relations were entirely pleasant and confidential.

Int. 81. In what manner were your instructions ordinarily conveyed to him, orally, or by a sketch?

Ans. Both by sketches made in his presence in my house, and by oral explanation.

Int. 82. Were you in the habit of preserving such sketches?

Ans. Such sketches were left in Mr. Daniels's charge, and I required him to procure a book for the copy and preservation of the most important sketches which were made.

Int. 83. Have you seen that book recently? If so, state if you know where it is.

Ans. The book referred to was produced and offered by Mr. Daniels as an exhibit in this interference case.

Int. 84. To whom does that book belong?

Ans. It belongs to the Washburn & Moen Manufacturing Company.

99 Int. 85. Were you in the habit, at that time, of communicating your ideas and plans to Mr. Daniels, without reserve?

Ans. I was.

Int. 86. Did it occur to you at that time to take any precautions to prevent your ideas and plans being claimed by him?

Ans. It did not.

Int. 87. Was Mr. Daniels in the habit, at that time, of bringing forward ideas of his own, relating to the construction of rod rolling and reeling devices, for discussion with yourself?

Ans. He did bring forward suggestions, and had the fullest encouragement to do so.

Int. 88. Were any devices invented, or in part invented, by him at that time, patented, so far as you know?

Ans. They were. I name patents Nos. 224,942, 224,840, 224,838, and I think there were several others in which we were associated, but I have not copies of them at present. These patents referred to were for rod-coiling reels.

Int. 89. Were those patented inventions invented jointly by yourself and Mr. Daniels?

Ans. They were.

Int. 90. For whose benefit and by whose directions were these patents applied for?

Ans. For the benefit, chiefly, of the Washburn & Moen Manufacturing Company, and for my personal benefit, as provided for in a certain contract between the company and myself. The company were desirous to have the patents applied for, and the applications were made by the company's attorney, Mr. Thomas H. Dodge, who at that time devoted nearly all his work for the company's benefit.

Int. 91. Did you ever obtain any personal benefit from these or any other inventions patented by you?

Ans. I have received no personal benefit from any patents obtained since my first engagement with the company, many of which have proved of great value to the company.

Int. 92. Did Mr. Daniels voluntarily join in making these applications?

Ans. He entered no protest, having had a previous under-
100 standing with me that any suggestions he could make were to be the property of the company.

Int. 93. Did you ever take out, for your own benefit, any patents in foreign countries for inventions of Mr. Daniels, or of which he was co-inventor with yourself?

Ans. Yes, sir; for one such invention, and illustrated by a certain English patent No. 4801, dated Nov. 25, 1879.

Int. 94. Was that patent obtained for your own benefit?

Ans. It was obtained for the benefit of the company and myself at that time.

Int. 95. How often were you in a room where Mr. Daniels was at work, during the years 1878 and 1879?

Ans. Two or three times every day when at home, and my duties were chiefly at home. During the last half of 1878 I spent a great deal of time in the drawing-room.

Int. 96. You have stated that you were absent during a part of the year 1885. When did you return, and what had been then

done in regard to construction of an automatic reel having a lifting platform?

Ans. There had been a little done toward the construction of an automatic reel, being but a slight modification of the reels tried in the latter part of 1879. I found an order on the file of the master mechanic for him to construct such reel, and countermanded the order by writing "hold" upon the same, with my signature. My return was Sept. 7, 1885.

Int. 97. Why did you countermand that order?

Ans. Because I had a right to, and because it involved my own invention, and involved the defects and danger which were in the first reel which was tested in the latter part of 1879, and for which I would have become responsible by its completion.

Int. 98. State what has been your practice with regard to taking to your house drawings belonging to the company.

Ans. It has always been my practice, from my first engagement with the company, to take any plans home for study and improvement, where I could be free from questions and interruptions.

Int. 99. Were the drawings of the company in your official custody?

101 Ans. They were.

Int. 100. Were you ever asked by Mr. Daniels, or any one else, as to the whereabouts of a certain drawing known in this case as Exhibit Daniels Drawing 3?

Ans. I do not remember to have heard any such question.

Int. 101. Did you have that drawing in your possession at any time since 1885?

Ans. I did not.

Int. 102. Have you any personal knowledge as to whether that drawing was ever out of its proper place in the draughting-room of the Washburn & Moen Manufacturing Company in the year 1885, or subsequently thereto?

Ans. I have no knowledge of its being absent, and was surprised when a statement to that effect was made by Mr. Daniels when he gave his testimony in this case.

Int. 103. When did you first learn, or suspect, that Mr. Daniels claimed to be, or regarded himself as, the inventor of the reel in controversy?

Ans. When I was notified of an interference having been declared between my application and his.

Int. 104. Are the reels built and used in the year 1886 like that illustrated in the drawings forming part of your application for a patent? and if not, point out in what respect they differ therefrom.

Ans. They differ in the driving clutch, marked "No. 9" in said drawing, and in the construction of the lifting platform B. This last platform, B, was changed by making it a single casting, concave upon the top, and with a continuous periphery.

(Adjourned.)

WASHINGTON, *May* 24, 10 *a. m.*, 1887.

Int. 105. Please look at the book in the custody of the notary, which contains Exhibit Daniels Sketches 1, 2, etc., and state whether you recognize it; and if so, what is it?

(Book shown the witness.)

Ans. This book I recognize as belonging to the drawing office of the Washburn & Moen Manufacturing Company, procured by my order, containing many of the details of a continuous rod mill, built in the years 1878 and 1879, for the company. It also con-
102 tains sketches of reels designed and patented by myself and jointly with Mr. F. H. Daniels. I notice, also, that it contains a memorandum of a conversation between Mr. D. C. Stover, Mr. Daniels and myself, dated Oct. 26, 1878, concerning an automatic reel designed by Mr. Stover.

(Objected to by counsel for Daniels as immaterial and irresponsive.)

Int. 106. I notice that this book contains a number of calculations, among other things. Do you know for what purpose they were made?

Ans. They were made for the construction of rod mills.

Int. 107. Have you seen the book in use; if so, by whom?

Ans. I have seen it in use in the office, and I recognize in it the work of Mr. Daniels and Mr. Carl Angstrom, at that time one of the draughtsmen in the employ of the company.

Int. 108. Was this book a private sketch book of Mr. Daniels, or were the designs, sketches and calculations therein made as part of his regular business in the service of the Washburn & Moen Manufacturing Company?

(Counsel for Daniels objects to the question as immaterial and frivolous, and a mere waste of time.)

Ans. It was not a private sketch book, and the work in it belonged to the company as much as any other drawings.

Int. 109. Please look at Exhibit Daniels Sketches 1 and 2, and state whether you ever saw them pasted in this book prior to the time the same was produced in evidence.

Ans. I have no remembrance of them.

Int. 110. In your answer to Int. 104 you have stated that the platform B was changed by making it concave upon the top. Is this correct?

Ans. No, sir; it should have been that it was convex. My statement that it was concave was a slip of the tongue.

Int. 111. Do you know George A. Lambert, who testified in this case? How long have you known him?

Ans. I do know him. I have known him for sixteen or eighteen years.

Int. 112. State what his employment is, and what has been your intercourse with him.

103 Ans. His employment was that of tinsmith and sheet-mental-worker. My intercourse with him was very frequent

until within a few years. Of late I have had little to do with him personally, he having been under the direct management of Mr. Daniels.

Int. 113. Has Mr. Lambert had access to the shop where the 1886 reels were constructed?

Ans. His work-room was in the shop building where the reels were constructed, and he had access to all parts of the shop.

Int. 114. Did his regular employment carry him to all parts of the shop?

Ans. Yes, sir; and to all parts of the works.

Int. 115. Please look at the model introduced in this case, marked "Exhibit Lambert Model," and state what, if any, features you find therein which existed in the 1886 reels, and did not exist in the reels designed or built before that time.

Ans. I notice in the lifting platform that its upper side is made convex, with a continuous periphery, whereas in the first reel that was tested with a lifting platform the platform was made concave on its upper side, and the periphery was not continuous. In the reel tested first, early in 1886, the platform was made by screwing straight wrought-iron spokes into a central hub, fastened to the lifting shaft.

Int. 116. Was there any special design or purpose in changing the form of the platform in the manner you have just indicated; and if so, what?

Ans. There was a purpose. It was found in a trial of the reel that portions of the coils of rods would catch on the arms of the lifting platform, and the change was made by my direction to abrogate that difficulty.

Int. 117. When was that change first made?

Ans. My remembrance is that it was made pretty soon after the trial, in March, 1886.

Int. 118. Was Mr. Lambert employed by you?

Ans. He was.

Int. 119. What was his ability as a workman?

(Objected to by counsel for Daniels as immaterial.)

Ans. He was a capable, prompt, vigorous, skilful workman, when in his best condition.

104 Int. 120. Did he always give satisfaction?

(Same objection.)

Ans. He did not. He was at times quite dissipated, when he became very much dissatisfied with his wages and his surroundings, and would have been discharged a long time ago if his skill could have been readily replaced.

Int. 121. Did you ever give any orders for the destruction of patterns, or parts of reels, having a lifting platform, built in accordance with the designs made in 1879?

Ans. I did not, although I had a perfect right to do so; and parts of the first reel tested were the lifting platform in the No. 2 building the last time I visited the mill.

Int. 122. When was that?

Ans. The first part of this month.

Int. 123. Have you since the declaration of this interference had any conversation with Mr. F. H. Daniels regarding the inventorship of the reel in question? and if so, state when and where, and what was said.

Ans. I have. I have had two such conversations with him, in the month of October, 1885. They were at a village in Worcester called Quinsigamond, where the company has a part of its works. The first conversation took place during a ride in which Mr. Daniels and myself talked this question over, and the latter conversation took place in the rod-mill building called No. 6 rod mill. Mr. Daniels said to me, at the first conversation, that Mr. Charles F. Washburn had called him to his office and asked him if he did not have to do with getting up the reel, and advised him to apply for a patent, and when the interference was declared, advised him to put in a preliminary statement. He, Daniels, said that he had no doubt I had invented the reel, and that he thought he did. He further said that he would not have applied for a patent if he had known I had done so. At the second conversation he again made the statement that he would not have made application for a patent for the lifting table now in controversy had he known that I proposed to, and he expressed his desire that the matter might be settled without controversy.

Int. 124. Do you make this statement from recollection alone?

105 Ans. I do not. I make it from a memorandum book usually kept at my residence. Memoranda of these conversations were made on the days when the conversations occurred.

Cross-examination by Mr. BAILEY, of counsel for Daniels:

Cross-int. 1. The memorandum book referred to in your last answer is now in your hands, is it not?

Ans. It is.

Cross-int. 2. Please refer to the page or pages in that book which contain the memorandum of the conversations in question, and show the same to me, if you have no objection?

Ans. I will put the book in the hands of the notary for inspection.

(The witness hands to the notary the book referred to, and the same is open for inspection of counsel.)

Cross-int. 3. Will you please read the memoranda referred to, just as they appear in the book, and give, in each case, the printed date under which the entry appears?

Ans. "Monday, Oct. 11, 1886, a. m. Mem. Had conversation with Fred. H. Daniels about automatic reel, in which he stated that C. F. Washburn had called him to his office and asked him if he did not have to do with getting up the reel, and asked him to apply for a pat., and advised him to put in preliminary statement. Daniels said he had no doubt I invented the reel, and that he thought

he did, and that he would not have applied for a pat. if he had known I had done so."

"Friday, Oct. 15, 1886. Mem. Had another talk about automatic reel with Daniels. He stated that he would not have made application for a patent on the lifting table had he known I proposed to."

(At this hour (11.30 a. m.) the counsel for Daniels states that his engagements in the Patent Office for this afternoon are such that he cannot now further proceed with the cross-examination of the witness, and requests an adjournment of the deposition until tomorrow morning at ten o'clock.

Counsel for Morgan states that he cannot agree to an ad-
106 journment at this hour, as his time is limited by the order of the Patent Office, and he himself has other engagements tomorrow and the day after. The witness himself desires to get through with his examination, and, moreover, Mr. Washburn is present as one of the counsel and he can proceed, if he chooses, with the cross-examination of the witness. The discontinuation of the examination of this witness, at this time, is a surprise, no previous notice having been given of any engagement or disability of counsel to proceed. The witness will be requested to sign his deposition, and the adjournment will be made final. If the counsel for Daniels wish to continue the cross-examination, they must produce him, at their own expense, in Worcester, within the time allotted for the examination of witnesses on behalf of Mr. Morgan.

Counsel for Daniels states that for the first time this morning he noticed that the record contained, among other things, the appearance of C. G. Washburn, Esq., on behalf of Daniels, and he requests the notary to be good enough to state by whose authority he made that entry.

The notary states that the entry was made on the statement of Mr. Mauro, who, at his request, prepared for him, on the first day of this proceeding, a memorandum of the parties present, and their counsel, he being then unacquainted with the names of two of the parties present in the room.

Counsel for Daniels requests Mr. Mauro, who is present, to be good enough to state from whom he derived any such information.)

Mr. MAURO: At the request of the notary, I undertook to write out for him the title of the case, and the parties present. In so doing, I having seen Mr. Washburn come in with Mr. Daniels, I asked him for his full name, and wrote it down for that purpose. Mr. Washburn has attended this examination throughout each day, or part of it; he certainly is not present on behalf of Mr. Morgan, and if he is not present on behalf of Mr. Daniels, I can conceive of no other explanation of his presence; and therefore took it for granted that he did appear for that purpose. I would say, however, that Mr. Washburn did not tell me to enter his appearance.

(Counsel for Morgan states that there is much ado about
107 nothing, and that if Mr. Washburn does not wish to appear

as counsel, let him say so, and it will be noted, and that will be the end of the matter.

Counsel for Daniels states that after this characteristic, courteous interruption by counsel for Morgan he desires to state that the entry in question was authorized neither by himself, nor by Mr. Washburn, nor by Mr. Daniels. That as matter of fact, Mr. Washburn does not appear as counsel, and that Mr. Bailey alone is acting here in that capacity. Counsel for Daniels further states that, as he has already informed Mr. Mauro at the commencement of the examination of this morning, he is engaged in a hearing before the Commissioner of Patents, today at 1.30 p. m., in an interference entitled "Weston *v.* Latimer *v.* Edison," the hearing of which will probably consume the remainder of the day, and it is simply for the purpose of enabling him to prepare for this hearing that he has asked for the adjournment at this hour, instead of at 1 o'clock. That the cross-examination of this witness will necessarily consume much time, not so much, however, as his direct examination has already consumed, and that the adjournment at this hour will make little, if any, appreciable difference. That, however, if counsel for Morgan is so pressed with business that he will be unable to attend after today, counsel for Daniels is perfectly willing to adjourn the examination of this witness to Worcester, Mass., there being ample time for this purpose, inasmuch as Morgan's time for testimony does not expire till June 10, next.

Counsel for Morgan, in reply, states that he is not in the habit of crowding the counsel of his adversary, and that he fully appreciates that it may be sometimes difficult, if not impossible, to attend to certain business; and had a proper request been made to him for an adjournment, to enable the counsel for Daniels to attend some other engagement, he would have taken pleasure in making timely arrangement with his client, and making his other engagement conform to the convenience of his adversary. But he cannot admit the ordering of an adjournment, as it was done without notice and without regard to parties or counsel on the other side. He adds that he will consult with Mr. Morgan, and will see whether he can remain over without any inconvenience to himself, and so far as he is concerned, he will endeavor to accommodate counsel for Daniels by finding some one else to attend for him the cross-examination.

108 Counsel for Mr. Morgan states, after consultation with his client, that if the cross-examination of his client can be finished tomorrow, he will remain over.

Counsel for Daniels states that he will certainly conclude the examination, if he can without committing himself to unseasonable hours.

Adjourned.)

WEDNESDAY—10 a. m.

Cross-int. 3½. Do the dates, to wit, Oct. 11 and Oct. 15, 1886, indicate that the two conversations referred to, between Mr. Daniels and yourself, were had on those dates respectively?

Ans. Yes, sir.

Cross-int. 4. Where did the conversation of Oct. 11, 1886, take place, and under what circumstances?

Ans. The conversation on the 11th took place on the road to Millbury, a little way below the village of Quinsigamond, referred to, in a carriage.

Cross-int. 5. How did you and Mr. Daniels happen to be in a carriage together at that time?

Ans. I think it was by invitation from me.

Cross-int. 6. Why did you invite him to drive with you?

Ans. To talk over affairs, among which was this question of interference.

Cross-int. 7. Had you previously informed him of your purpose?

Ans. I don't remember that I did.

Cross-int. 8. Do you remember saying to him, during this drive, that whatever might be said would be strictly confidential or anything to that effect?

Ans. No, sir.

Cross-int. 9. Are you sure you said nothing of the kind?

Ans. I haven't the slightest remembrance of anything of the kind.

Cross-int. 10. Did you ask Mr. Daniels whether he was satisfied with his contract with the Washburn & Moen Manufacturing Company?

Ans. I think I did.

Cross-int. 11. What else did you say about that contract, so far as you now remember?

109 Ans. I said that I had been led to suppose that he was dissatisfied with it, from his own remarks from time to time, which had given me that impression.

Cross-int. 12. Is this all that was said by you, or either of you, on the subject? If it is not, please state all that you now recall.

Ans. I think I said to him that I thought it would have been more satisfactory to him if he had been more confidential with me in the matter. I don't recall anything further at the present time.

Cross-int. 13. That what would have been more satisfactory, and to whom?

Ans. The contract between him and the company, and more satisfactory to himself.

Cross-int. 14. Did you mean by this that you could have helped him to make better terms with the company than those he had made?

Ans. Yes, sir.

Cross-int. 15. And that you would have done so?

Ans. I didn't say the latter.

Cross-int. 16. I know you didn't, but I ask if that is what you meant?

Ans. He had a right to infer that I would try.

Cross-int. 17. And you were not unwilling that he should draw that inference, were you?

Ans. No, sir. I would like to add that I now recall a talk with Mr. Daniels about his disloyalty to me as his superior, to whom he was bound to be loyal. His excuse was, he had been called and consulted by the directors, or some of them, and said substantially to the effect that he was between two fires. This disloyalty had begun before the last contract was made by him and the company, and in my judgment, his services would have been worth more to the company if he had been loyal to me as his superior officer. That is my explanation of the talk with him about his contract.

Cross-int. 18. At the time this contract between Mr. Daniels and the company was made, what position did you hold in the company?

Ans. The position of general superintendent.

Cross-int. 19. And director?

Ans. Yes, sir.

110 Cross-int. 20. And did you hold these same two positions on Oct. 11, 1886, the date of this conversation with Mr. Daniels?

Ans. Yes, sir.

Cross-int. 21. By disloyalty, as applied to Mr. Daniels, do you mean disloyalty to yourself or disloyalty to the Washburn & Moen Manufacturing Company?

Ans. I mean disloyalty to myself as his superior officer, to whom he was directly responsible.

Cross-int. 22. During the conversation, did you indicate to Mr. Daniels the particular act which you deemed disloyal to yourself? If you did, please state it; say what.

Ans. I spoke of quite a number; among them, cases where he had gone away from his duties without informing me of his proposed absence. I don't remember particularly of any one other thing.

Cross-int. 23. Did you speak of any act of Mr. Daniels in connection, for instance, with the Pielsticker invention for liquid rolling, so called?

Ans. I presume I did, as that was one of the cases wherein I considered that he acted in a disloyal manner.

Cross-int. 24. Please state wherein in that instance his disloyalty, in your opinion, consisted.

Ans. In leaving his regular duties without my consent, to gather information on that subject.

Cross-int. 25. Are you not aware that Mr. Daniels was instructed by the directors of the company to do this: that is, to get the information requested?

Ans. I had no official knowledge of that subject. He so stated to me.

Cross-int. 26. Did not young Mr. Moen, on the next day after this

occurrence, inform you that Mr. Daniels had left word with him to inform you of his absence, but that he had forgotten to do so?

Ans. That was no official information from the directors, or either of them. If Mr. Daniels wished to be away, it was his duty to have seen me, or have left a line for me, stating his business, if it was in the interest of the company.

Cross-int. 27. Had you not advised the Washburn & Moen Company to purchase the Pielsticker invention?

111 Ans. I had advised them to purchase an interest in it.

Cross-int. 28. How much money, if any, did you advise them to pay for the invention, or an interest in it?

Ans. I don't remember.

Cross-int. 29. Was it as much as one hundred thousand dollars?

Ans. I don't remember.

Cross-int. 30. You, individually, were pecuniarily interested in this purchase which you advised, were you not?

Ans. I was, and so stated frankly to the directors.

Cross-int. 31. Do you know whether Mr. Daniels was called upon to advise concerning the expediency of making this purchase?

Ans. I presume he was.

Cross-int. 32. What was his advice to the company, if you know?

Ans. I do not know.

Cross-int. 33. Are you not aware that Mr. Daniels advised against this purchase?

Ans. I presume he did.

Cross-int. 34. Were you not aware of this fact, at the time you had this conversation with him, on Oct. 11, 1886?

Ans. I presume so.

Cross-int. 35. And did not, as a fact, the company decline to make the purchase advised by you?

Ans. They did decline.

Cross-int. 36. As matter of fact, was not this act of Daniels, in advising against the purchase of the Pielsticker invention, one of the acts of disloyalty referred to by you in the conversation of Oct. 11, 1886?

Ans. It was not.

Cross-int. 37. Did you not, on this occasion, and with reference to this matter, tell Mr. Daniels that you didn't wish him to make you eat dirt, and that he had no right to go to the directors as he had in the Pielsticker matter, or words to that effect?

Ans. I did not.

Cross-int. 38. Are you sure that during this conversation Mr. Daniels stated to you that "C. F. Washburn had called him

112 to his office and asked him if he did not have to do with getting up the reel"?

Ans. Yes, sir; or words to that effect.

Cross-int. 39. And further, that Mr. Washburn "asked him to apply for a patent, and advised him to put in a preliminary statement"?

Ans. Yes, sir.

Cross-int. 40. Are you entirely sure Daniels said he had no doubt you invented the reel?

Ans. I am.

Cross-int. 41. And that he also said "he thought he did"?

Ans. Yes, sir.

Cross-int. 42. What do you suppose he meant by that?

Ans. I don't suppose.

Cross-int. 43. Is that the only answer you can make?

Ans. That is all.

Cross-int. 44. How do you reconcile the statement that he had no doubt you invented the reel, with the other statement that he thought he did?

Ans. I don't undertake to reconcile it.

Cross-int. 45. But you are willing to swear, are you, that this is precisely what he said?

Ans. I am; or words to that effect.

Cross-int. 46. Might he not have said that he had no doubt you thought you invented the reel, and he thought he did? And wouldn't that be a more sensible and likely speech than the one you committed to your memorandum book?

Ans. I think if he had made just those remarks I could have remembered them for a few hours, or until the time I made the record of what he did say.

Cross-int. 47. Did not Mr. Daniels say to you, in effect, that he was very sorry to be in interference with you?

Ans. Substantially that he was sorry to be at variance with me.

Cross-int. 48. And did he not also say to you that he wished the matter could be arranged by arbitration, or in some other amicable way, without going to law?

Ans. He did express a desire that the matter might be set-
113 tled; but I don't remember that he said anything about arbitration, or I should have been glad to have availed myself of such an offer

Cross-int. 49. Did you propose arbitration to him?

Ans. No, sir.

Cross-int. 50. What, if you remember, did you reply to him, when he intimated a desire to settle the matter in an amicable way, without going to law?

Ans. I regarded his statement as the expression of his own personal wish; and as the directors had refused to settle another interference case by arbitration, I had no hope that this could be settled in this way.

Cross-int. 51. So that you told him, in effect, as I understood, that it could only be settled through the Patent Office. Is that correct?

Ans. Substantially.

Cross-int. 52. Did you not suggest to him that he should abandon the interference?

Ans. I did not.

Cross-int. 53. Did you not suggest to Mr. Daniels that if he gained

the interference, it would only be of advantage to the company; whereas if you prevailed, it would be a personal advantage to yourself as well?

Ans. I did. I believe that to be a fact at that time, and I believe it now.

Cross-int. 54. Did you not also refer to your past friendship with Mr. Daniels, and to how you had been his friend, and helped him on?

Ans. I don't remember, sir, that I referred to helping him.

Cross-int 55. Didn't you speak of the friendship that had existed between you?

Ans. I spoke of the pleasant relation we had had in the times past, and he expressed a wish that the same relations might exist as had in the past, or words to that effect.

Cross-int. 56. What was your object in referring to your past relations with Mr. Daniels, and in suggesting to him that if he gained the interference, it would benefit only the company; whereas if you prevailed, it would also be of advantage to yourself?

114 Ans. I think the reference to past relations was introduced by Mr. Daniels. It was only a short time before that I had been apprised that an interference had been declared between Mr. Daniels and myself, which was a very great surprise to me, and I do not remember that I had any special object in stating what I believed to be a fact in regard to the invention in question.

Cross-int. 57. At the time of this conversation with Mr. Daniels, you were general superintendent of the Washburn & Moen Manufacturing Company, and one of its directors, were you not?

Ans. Yes, sir; as I have before stated.

Cross-int. 58. With respect to the conversation of Oct. 15, about which you have testified, where and under what circumstances did that take place?

Ans. In what is known as the No. 6 rod-mill building, at the Quinsigamond works. I think we were talking about some regular business when Mr. Daniels introduced the matter himself. That is my remembrance of the conversation.

Cross-int. 59. Did not Mr. Daniels, at this time, again indicate to you his desire to settle the controversy in some amicable way?

Ans. Yes, sir.

Cross-int. 60. And was not this, in fact, the purport of his conversation?

Ans. Of a part of it. He did not indicate that the directors or either of them had any such desire, and I had no indications that they had any such desire, and regarded Mr. Daniels then, as I do now, entirely in their hands in this matter.

Cross-int. 61. The fact is, is it not, that you believe the directors of the Washburn & Moen Company to be in league against you, and that they are making use of Mr. Daniels to further their ends?

Ans. I am not here to express opinions or pass judgment in regard to them.

Cross-int. 62. You have already stated, have you not, that the directors are working against you in this interference?

(Objected to by counsel for Morgan, unless the answer referred to be indicated.)

Ans. I don't think I have, in those terms. I now say that I did use substantially those words.

115 Cross-int. 63. And you also state, in terms, that Mr. Daniels is entirely in their hands in this matter?

Ans. Yes, sir.

Cross-int. 64. Then, if this be the case, why did you make the answer that you have made to cross-int. 61?

Ans. For the reason that I didn't wish to indorse the language in cross-int. 61 as my own.

Cross-int. 65. In your answer to Int. 8, do you mean to say that the increase of the business of the company from the employment of 300 men to 3,500 men, and from an output of 10 to 15 tons daily to 200 tons per day, is due solely to your personal services as general superintendent; or do you mean that the business of the company has grown to the extent indicated during the twenty-three years, more or less, of your employment by the company?

Ans. I mean the latter; and that I have contributed my fair share to its prosperity.

Cross-int. 66. In your answer to Int. 9, you say, among other things, "Some time in February, 1885, a scheme was brought forward by Mr. E. S. Lenox, proposing changes in the wire-rod rolling carried on by the company. In this scheme I saw that certain inventions of my own were involved." Please state what those inventions, if your own, were, which were so involved.

Ans. I have not looked over the scheme lately, and cannot specify definitely, but I remember that there were some of the reel inventions included in this scheme.

Cross-int. 67. What reel inventions?

Ans. Some that have been referred to in this case.

Cross-int. 68. Quite a number have been referred to; please indicate particularly which of them.

Ans. My remembrance is, that No. 224,941 was one, and that No. 224,942 was another.

Cross-int. 69. These were all?

Ans. All I think of just now.

Cross-int. 70. The patents referred to were owned by the Washburn & Moen Company, were they not?

Ans. Partly.

116 Cross-int. 71. And the company was free to use said inventions at its works, was it not?

Ans. They had the right to do so.

Cross-int. 72. Then why was your dissatisfaction greatly increased by the fact that the scheme of Mr. Lenox involved the patented inventions referred to?

Ans. Because I discovered at that time, or shortly after, that the directors, or some of them, had been discussing this scheme with Mr. Lenox without saying anything to me about it.

Cross-int. 73. This does not answer my question. In your answer to Int. 9, after reciting several preliminary causes of dissatis-

faction, you then take up the Lenox scheme, and say, "In this scheme I saw that certain inventions of my own were involved, which greatly increased my dissatisfaction, particularly when I found that the directors, or some of them, had known of this scheme before, and had not communicated the same to me." What I want to know is this: Why should the fact that certain patented inventions of your own, free to be used by the company, were involved in the Lenox scheme, as you allege, why should this fact have created any dissatisfaction or increased any existing dissatisfaction on your part?

Ans. Because I believed that there were possibilities in connection with one or more of these inventions which I could work out better in my own way than in connection with Mr. Lenox's plans, and because I, as one of the directors, had a right to know in regard to what pertained to my own department.

Cross-int. 74. Did you ever attempt to realize any of those possibilities of which you speak, in connection with the Lenox scheme?

Ans. Yes, sir; and more fully in connection with other rod mills, with which he had nothing to do.

Cross-int. 75. My question was directed solely to the realization of those possibilities in connection with the Lenox scheme of which you speak. Please answer my question with reference to that.

Ans. I have answered, as I understood the question.

Cross-int. 76. When and where did you realize or attempt to realize these possibilities in connection with the Lenox scheme, and state what was done?

(Counsel for Morgan objects to the question as not pertinent to the issue, and the witness is advised by counsel that he is not obliged to answer and disclose any of his inventions not involved in this interference.

117

Ans. I think one of my answers to a question on direct examination substantially answers this question.

Cross-int. 77. Is the answer referred to, your answer to Int. 14 of your direct examination?

Ans. Yes, sir; and Mr. Daniels' report thereon.

Cross-int. 78. You were involved in two interferences with Mr. Lenox, were you not, in this scheme, or machinery to be used in the same?

Ans. Yes, sir.

Cross-int. 79. In both of those interferences Mr. Lenox was adjudged to be the prior inventor of the matter in dispute, was he not?

Ans. He received patents for the same.

Cross-int. 80. It was in those interferences that you filed the protest which has been made an exhibit in this case, was it not?

Ans. Yes, sir.

Cross-int. 81. Who prepared that protest?

Ans. Mr. Pollok, my counsel, from facts contributed by me.

Cross-int. 82. When did you ascertain that the Lenox scheme involved patented inventions of your own?

Ans. When I first saw it.

Cross-int. 83. When was that?

Ans. Either the 23d or 24th of February, 1885, as I now remember.

Cross-int. 84. You were at that time under contract with the company, were you not?

Ans. Yes, sir.

Cross-int. 85. Is that contract in writing?

Ans. Yes, sir.

Cross-int. 86. Have you a copy of it; and if so, are you willing to produce it?

Ans. I have not a copy here.

Cross-int. 87. One of the conditions of that contract, I understand you to say, was that the company should have the free use of any invention you might make during its existence; am I correct?

118 Ans. You are.

Cross-int. 88. And was that free use an exclusive use?

Ans. It was not.

Cross-int. 89. What was the consideration expressed in this contract, or agreement, for which they obtained this right to your inventions?

Ans. That is a private matter. I decline to answer.

(Question and answer objected to. The contract itself is the best evidence of what it contains, and it is in the power of counsel for Daniels to produce it.)

Cross-int. 90. Was not, as a matter of fact, the consideration which you received, an annual salary varying from $10,000 to $12,000?

Ans. I decline to answer that question.

Cross-int. 91. Why?

Ans. I don't see that it has anything to with this case.

Cross-int. 92. Is that your only reason?

Ans. I think that is a sufficient reason.

Cross-int. 93. I wish to know if that is your only reason. If you decline to answer, say so. If you are going to answer, do so.

Ans. I decline.

(Counsel for Morgan objects to this line of cross-examination, and states, if the contract referred to in the question names the consideration, then the contract itself is the best evidence, and should be produced. If it does not name any consideration, it is because the witness, for personal reasons, does not care to have his private and financial affairs disclosed; and the examination should not, therefore, be conducted simply for the purpose of being personally disagreeable to the witness, unless some object is indicated why the question should be answered.

Counsel for Daniels does not care to argue this question. He believes the question to be warranted by the direct examination, referring particularly to answers to Ints. 6 and 7, and he gives notice that if the witness persist- in his refusal to answer these questions,

he shall move the Commissioner of Patents to suppress this deposition.

Counsel for Morgan advises the witness not to answer, for the reason, if it be in the interest of Daniels to show the fact in-
119 quired about, he has it in his power to produce the documents, and the witnesses to prove it. To force the statement out of the mouth of the witness simply because it is irritating him to refer to his own private matters, will not be regarded as sufficient cause to justify the suppression of his deposition.

Adjourned.)

WASHINGTON, *May* 25, 10 a. m., 1887.

Cross-int. 94. Why did you desire to be released from this agreement?

Ans. That I might have time to consider the question of the Lenox propositions and my own personal interests, which were involved.

Cross-int. 95. Was not your reason substantially this: That you had what you considered to be important inventions or improvements in your mind, which you desired to remove from the purview of that contract or agreement?

The WITNESS: I should like to appeal to my counsel as to whether I am required to give my motive.

(The witness is advised by his counsel to answer the question, unless there be some entirely personal reason for his not doing so.)

Ans. Yes.

Cross-int. 96. I understand you to say, in your answers to cross-ints. 87 and 88, that the contract or agreement in question did not give the company the exclusive use of inventions made by you during its existence. Am I correct in this understanding?

Ans. That was my statement. I have not seen the contract, but I had rights under the contract to use such inventions after leaving the service of the company, unless such inventions were purchased by the company.

(Counsel for Morgan enters an objection to all questions regarding the contents of the contract referred to.)

I see by the questions and answers referred to, that I did not fully understand the question.

Cross-int. 97. What did you mean by your answer to cross-int. 88?

Ans. I meant that I had personal rights and interests in
120 the patents, independent of the company, as provided in the contract referred to.

Cross-int. 98. Did you not, in your deposition given in the Morgan *v.* Lenox interference, which you have brought into this case, testify that said agreement gave the company the exclusive use of your inventions?

(Objected to by counsel for Morgan, unless the particular answer referred to be indicated; and further, because the statement that the

depositions in the Morgan *v.* Lenox case are brought into this case, is not warranted by anything that has transpired in the examination of this witness.)

Ans. I do not remember that I did; I may have done so.

Cross-int. 99. I hand you the printed record of your testimony in that interference, and ask you to read, on page 78, your answer to cross-int. 129, and then answer the question last preceding.

Ans. Yes, sir; that appears to be my statement, but the contract, which is a matter of record in the Patent Office, can be seen; and I repeat that I did have rights of use after I should leave the service of the company, unless such rights were purchased, as provided for in the contract.

(Counsel for Daniels at this point gives notice that he shall refer, at the hearing of this cause, to the files and records of said interference, entitled Morgan *v.* Lenox, in the United States Patent Office.)

Cross-int. 100. Had you not, up to the time you made this request, received from the company all that you, on your part, were entitled to under the agreement?

Ans. Yes, sir.

Cross-int. 101. At the time you made the request for release from the agreement, did you also offer to resign as general superintendent?

Ans. I may have done so; I don't remember all the conversation.

Cross-int. 102. You did not resign, did you, until after the company had refused to release you from all obligations under the contract?

Ans. I did not; but when I did resign, I was asked to re-
121 main for three months, unless I was sooner released, which I consented to do.

Cross-int. 103. You state that machinery was finally made to test the Lenox scheme. Who prepared the plans under which this machinery was made and set up?

Ans. After consultation with Mr. Lenox as to that part of his plan which he deemed the most hopeful of success, plans were made, machinery built, under my direction, and tested in accordance with the wishes of the directors.

Cross-int. 104. What part of the machinery did you consult Mr. Lenox about?

Ans. About the general plan of the machinery.

Cross-int. 105. Did you consult him personally?

Ans. Yes, sir; that is my remembrance.

Cross-int. 106. Was this before or after you started the working plans for building the machinery?

Ans. Before.

Cross-int. 107. Who calculated the horse power necessary to drive the machinery, and who purchased the engine therefor?

Ans. I did.

Cross-int. 108. Who made the plans for the reel heating apparatus, and for the reels themselves?

Ans. As I have already stated, the plans were made and the machinery constructed under my direction.

Cross-int. 109. Was Mr. Lenox consulted in respect to the details specified in the two questions last preceding?

Ans. He was not, for he was not an engineer of experience in such matters.

Cross-int. 110. What was the expense to the company of this trial of the Lenox invention made under your supervision?

Ans. I have no data from which to estimate. I spared no pains to make it a success.

Cross-int. 111. State the expense approximately, as nearly as you can estimate.

Ans. It may have cost $10,000; it may have cost more or less.

Cross-int. 112. When did you, or any one in your behalf, to your knowledge, first meet or communicate with Daniel C. Stover, after the declaration of this interference?

122

Ans. I can't tell accurately. A brother of mine, F. H. Morgan, called on him and asked him what he remembered in regard to the matter. He did not afford any information at that time. Later on, perhaps a month or six weeks before the taking of this deposition, Mr. Daniel C. Stover came to Worcester. I asked him what he remembered about his invention of a reel, when it took place, with a discharging device. He said he could not say anything definitely about it. I asked him if he had no memoranda and books by which he could establish the time when he came to Worcester. He said that he would do so, but he never sent me any information, and I did not know what he could find, but had the belief that if he saw the models which I had shown to him directly after he had shown me his model (patent No. 219,124), he would recall the whole matter.

(All of the answer after the second sentence thereof is objected to by counsel for Daniels as volunteered, and irresponsive to the question.)

Cross-int. 113. At whose request did your brother, F. H. Morgan, call on Mr. Stover, and when was the request made, if you know?

Ans. He called at my request. I have no memoranda to fix the date of this request.

Cross-int. 114. State the date, as nearly as you now remember.

Ans. I should say it was four or five months ago,—about four months; it may have been longer.

Cross-int. 115. Where does your brother reside?

Ans. Worcester.

Cross-int. 116. Did you send him out to Mr. Stover's residence, in Illinois?

Ans. Yes, sir.

Cross-int. 117. When next did you, or any one in your behalf, have any communication with Mr. Stover?

Ans. As I remember, what I have already stated, when he came to Worcester some four or six weeks ago, more or less.

Cross-int. 118. Did he come there at your request?

123 Ans. He did not.

Cross-int. 119. Who, to your knowledge, made the model which was marked in evidence "Exhibit Stover Model"?

Ans. I do not know. I asked Mr. George H. Scott, of Worcester, to have this model made, and he procured it for me.

Cross-int. 120. When did you make this request of Mr. Scott?

Ans. Shortly after Mr. Daniels gave his testimony in this case.

Cross-int. 121. In your answer to Int. 65 you give as a reason for not continuing experiments with automatic reels that the demand for smaller rods had been met by an invention called "salt coating." Please state who made this invention, and what it was for; and if patented, give the number and date of the patent, or patents, if there be more than one.

Ans. This invention was made by V. D. Kenerson and Charles Henry Morgan. They took out a patent in 1878. I cannot give the number and date. Another patent was issued, I think, about two years after, I think—it was quite awhile after the other—to myself for using this salt coating hot. This coating was for preparing the wire for drawing.

Cross-int. 122. The two patents are respectively No. 203,346 of May 7, 1878, and No. 229,836 of July 13, 1880 (the latter applied for Oct. 9, 1878), are they not?

Ans. They are.

Cross-int. 123. Who is Charles Henry Morgan?

Ans. He is my son.

Cross-int. 124. When did the company commence to use the salt-coating invention covered by these patents?

Ans. I think, in February, 1878, in an experimental way.

Cross-int. 125. How long did they continue to use it, and when did they discontinue its use?

Ans. They discontinued its use in 1885.

Cross-int. 126. What time in 1885? Was it during the period of your absence from the company's works in that year?

Ans. Yes, sir.

Cross-int. 127. State whether or not a royalty was paid by the company for the use of said invention.

Ans. There was.

124 Cross-int. 128. Did you receive any share of the same?

Ans. Yes, sir.

Cross-int. 129. Please state what proportion was received by you.

Ans. One-third of it was my share.

Cross-int. 130. Can you state approximately the average amount paid annually by the company as such royalty? If you can, please do so.

Ans. I cannot.

Cross-int. 131. Might it not have been in the neighborhood of from $12,000 to $15,000 per annum?

Ans. Possibly it was. I think not; I have no memorandum here to verify the figures.

Cross-int. 132. Do you think it was as much as $10,000 per annum?

Ans. It may have been.

Cross-int. 133. To what did the plans mentioned in your answers to Ints. 18 and 22 relate?

Ans. They related to plans for rolling mills.

Cross-int. 134. In what way has the company had the benefit of those plans, as you allege?

Ans. By having copies of the plans referred to, which were made at my expense.

Cross-int. 135. Have those plans been used in the construction of any rolling mill? If yea, where and when? State what you know on the subject.

Ans. They have been used; one for the construction of a rod-rolling mill called by the company No. 6, and also in the construction of a billet mill called the continuous billet mill; the last-named mill having seven pairs in series of reducing rolls.

Cross-int. 136. Do you mean to say that the plans for the No. 6 mill were prepared by you outside the works of the company, and at your private expense?

Ans. The original outline plans and calculations were so made, and at my expense.

Cross-int. 137. By outline plans, do you mean the plans from which No. 6 mill was actually built?

125 Ans. Yes, sir; I had made a study of a rod mill, and made the outside plans and calculations before recommending to the directors to build this mill, and before they voted to build this mill.

Cross-int. 138. Who made the drawings for which the No. 6 mill was actually built?

Ans. They were made by the company's draughtsman, under my directions. To facilitate and expedite the completion of these plans, I had my private draughtsman come to the company's drawing office for a number of months.

Cross-int. 139. Who was your private draughtsman referred to, and during what months was he at the drawing-room of the company?

Ans. Carl J. Sundstrom. He came to the works some time after February, 1886, as I remember. I cannot tell by any memoranda I have with me how many months he worked on this mill. I find a memorandum of a settlement with him for his services Feb. 3, 1886. I find another memorandum of a settlement with him dated Oct. 30, 1886. It was between those dates; I cannot tell any nearer.

Cross-int. 140. When were the drawings for No. 6 mill started?

Ans. I cannot tell definitely, but I think in the latter part of 1885.

Cross-int. 141. And when were they completed?

Ans. I cannot tell you that. The first rod was rolled Nov. 24, 1886.

Cross-int. 142. If the mill was in operation on the 24th of November, the plans or drawings must have been made some time prior to that, must they not?

Ans. Not necessarily, for we started the mill on coarse rods which were reeled on the old plan, which we called a power reel in distinction from a reel turned by hand and an automatic reel. There may have been some drawings made after that date. I don't remember.

Cross-int. 143 and 144. Were not the drawings for No. 6 mill made at the company's expense? In other words, were they at any expense in the making of those drawings; and if yea, what expense?

126 Ans. They paid for the drawings made upon their own premises.

Cross-int. 145. In whose employ was Sundstrom, before he entered your private employ, as you allege?

Ans. Messrs. Brown & Sharp, of Providence, R. I.

Cross-int. 146. The billet mill, or, as you term it, the continuous billet mill, was one which the company designed to use in connection with the No. 6 mill, was it not?

Ans. That was the design. I had the design and proposed the plan to the company, and had been at work on the plans for some time prior to the directors voting to build such a mill.

Cross-int. 147. You say this last-named mill has seven pairs in series of reducing rolls. Do you mean to say that this plan for the billet mill was of your own origination, and that it was not suggested to you by some one?

(Objected to by the counsel for Morgan as irrelevant.)

Ans. I do mean to say that the plan of rolling billets, substantially as adopted, was my own proposition, and that I had for years entertained a somewhat similar plan, and had drawings made in 1880 for a continuous billet mill.

Cross-int. 148. Did not the plan for this mill, which you submitted to the directors of the Washburn & Moen Manufacturing Company, involve and exhibit the use of "three-high" rolls, instead of pairs of rolls in series?

Ans. One such outline plan did, and I subsequently proposed the continuous plan.

Cross-int. 149. After you had exhibited your "three-high" roll plan to the directors, did not Mr. Daniels show and explain to you one or more plans for this billet mill, which involved the use of pairs of rolls in series?

Ans. Yes, sir. I would state in addition that Mr. Daniels knew perfectly well of my earlier plans of rolling billets continuously, and of drawings made by a draughtsman named Carl Angstrom, 1880. Mr. Daniels's plan did not contemplate the use of a continuous series without the intervention of manual labor.

(All after "yes, sir" in the preceding answer is objected to by the counsel for Daniels as volunteered and irresponsive.)

127 Cross-int. 150. And it was not until after you had seen Mr. Daniels's plan that you submitted to the directors a plan involving horizontal rolls in series, was it?

Ans. I think that is true; and I will say that I adopted no part of the plan proposed by Mr. Daniels.

(Last portion of the answer is objected to by counsel for Daniels as volunteered and irresponsive.)

Cross-int. 151. Were the drawings for this billet mill made under your direction?

Ans. Yes, sir; they were.

Cross-int. 152. Where?

Ans. In my private drawing-room, No. 25 Lincoln street, Worcester.

Cross-int. 153. By whom?

Ans. By Carl J. Sundstrom and Axel Backlin.

Cross-int. 154. When?

Ans. In the winter and spring of this year, 1887.

Cross-int. 155. How long ago were they completed?

Ans. About the first of May the details of the rolling mills were completed, with the exception of some details which I designed for transferring the rolled billets into a heating furnace and upon cars, as might be required.

Cross-int. 156. The drawings were started, as I understand, some time in the year 1887?

Ans. Yes, sir; that is the time, I think.

Cross-int. 157. When did Axel Backlin enter your employ?

Ans. He has been in the employ of the company for some years, and in my private employ.

Cross-int. 158. Was he in the employ of the company at the time he helped to make the drawings referred to?

Ans. Yes, sir.

Cross-int. 159. And he did this work in your private drawing-room on Lincoln street, did he?

Ans. Yes, sir.

Cross-int. 160. Is he still working for you?

Ans. No, sir.

128 Cross-int. 161. For what length of time was he continuously at work for you at 25 Lincoln street?

Ans. I don't remember accurately; I should think about two months.

Cross-int. 162. During all of which time he was in the pay of the company?

Ans. Yes, sir.

Cross-int. 163. Did you have any authority from the company to put him at this work at 25 Lincoln street?

Ans. No specified authority; but the right to do so, in my judgment.

Cross-int. 164. In whose possession are the drawings for the billet mill referred to?

Ans. Most of them are in mine, and two copies of which have been furnished the company for the construction of the mill.

Cross-int. 165. By copies, do you mean blue prints?

Ans. I do.

Cross-int. 166. Why have you retained these drawings in your possession?

(Counsel for Morgan is now compelled to enter an objection to this line of cross-examination, which has been tolerated already too long, being entirely irrelevant, immaterial, and uncalled for by the examination-in-chief, and evidently intended to be used for purposes other than this interference.)

Ans. Because I considered them my property.

Cross-int. 167. Have you possession, in like manner, of the drawings of the No. 6 mill?

(Objected to, on the same grounds, by the counsel for Morgan.)

Ans. I have not.

Cross-int. 168. In your preliminary statement, you say that you conceived the invention in controversy about the months of March and April, 1879, and in your answer to Int. 36 you fix said date by working drawings which you found in the files belonging to the company. Have you the drawings referred to?

Ans. I have not.

Cross-int. 169. Have you copies of the same?

Ans. I have not, except I am confirmed by the drawing
129 put in as an exhibit by Mr. F. H. Daniels in this case, marked "Daniels' Exhibit Drawing 1."

Cross-int. 170. What were the working drawings referred to in your answer to Int. 36; that is to say, what did they represent?

Ans. Some of the details connected with this No. 2 rod mill, which was first tested in February, 1879.

Cross-int. 171. Please state what those details were.

Ans. Guides, and some details of a reel.

Cross-int. 172. What kind of reel?

Ans. Automatic reel.

Cross-int. 173. Was it a tube reel?

Ans. It was a reel illustrated by the patent No. 224,941.

Cross-int. 174. You mean a reel having inner and outer sets of spokes?

Ans. Yes, sir.

Cross-int. 175. What enabled you to fix the date of your conception of the invention in controversy by these drawings?

Ans. My memory as to what was going on at that time.

Cross-int. 176. At what time?

Ans. In March and April.

Cross-int. 177. Why did you connect the drawings referred to with March and April, 1879?

Ans. Because I knew what was going on.

Cross-int. 178. What was going on?

Ans. Attempts in running a new mill, the trial of new guides and changes in them, which were being made in February and early in March, and with which Mr. Daniels had to do.

Cross-int. 179. Did the working drawings referred to bear any dates; and if yea, what dates, as you now recollect?

Ans. I do not recollect. I made no memorandum of the drawings.

Cross-int. 180. Now please state what there was about these working drawings which enabled you, by their aid, to fix in your preliminary statement the date of your conception of the invention here in controversy as about the months of March and April, 1879.

130 Ans. I cannot tell you what there was about the drawings, except as I have stated already.

Cross-int. 181. You have said, have you not, that you fixed the said date of conception by these working drawings?

Ans. I think I have.

Cross-int. 182. Can you not explain why you did so? If you can, please do so.

Ans. From their character and their connection with the mill, and what I remembered followed.

Cross-int. 183. Followed what?

Ans. Followed the construction of the mill and the drawings referred to.

Cross-int. 184. What followed the construction of the mill and the drawings referred to?

Ans. The making of the drawing, Exhibit Daniels' Drawing 1.

Cross-int. 185. What had the making of Daniels' drawing No. 1 to do with the fact, if it be a fact, that you conceived the invention in controversy about the months of March and April, 1879, as alleged in your preliminary statement?

Ans. The fact that I knew that this drawing was made about that time, but could not find it in the files of the company's drawing.

Cross-int. 186. You looked for the said Daniels drawing at the time you were looking for materials for the preparation of your preliminary statement, did you not?

Ans. I did.

Cross-int. 187. And you were not able to find it at that time?

Ans. I was not.

Cross-int. 188. When did you last see it, before that time?

Ans. I do not remember how long it had been.

Cross-int. 189. Are you able to state approximately?

Ans. No, sir; I had had no occasion to refer to that for some time, for I did not find drawing marked "Exhibit Daniels' Drawing 2."

Cross-int. 190. Did you ever have occasion before that time to refer to Exhibit Daniels' Drawing 1?

Ans. I don't remember that I had. Not since the drawing 2 was made. The other one became of no use to me after that.

131 Cross-int. 191. Did you ever refer to it before Daniels' Drawing Exhibit 2 was made?"

Ans. I ordered it made, and gave instructions in its design and details.

Cross-int. 192. You have not answered my last question. But let that pass. I wish now to ask you whether you seriously state, under oath, that the drawing marked in evidence "Exhibit Daniels' Drawing 1" was made in pursuance of your instructions, and that to you alone are to be credited the design and details of the structure thereon illustrated?"

(Counsel for Morgan objects to the interpolation in the question of any insinuation that the witness is not making his statements seriously under oath. This is no trifling business.)

Ans. I think I have already stated, in answer to a previous question, that Mr. Daniels suggested the combination of the two hydraulic lifting cylinders, to be supplied through one pipe and valve, and that I adopted his suggestion, which was the only part of the details which was not suggested and designed by myself.

Cross-int. 193. Before this drawing, Exhibit Daniels' Drawing 1 in question, was made, had there not been built an automatic reel at the company's works?"

Ans. Yes, sir; I think so.

Cross-int. 194. What kind of reel was that? A reel with two sets of spokes, or a reel like a tub, with an outer case and an inner row of spokes?"

Ans. I think the one in patent No. 224,787 has been tested.

Cross-int. 195. Any other?"

Ans. I don't remember that there had been a test of reeling with any other.

Cross-int. 196. Had there not been a reel tested in connection with overhead tongs, such as illustrated in your letters patent No. 220,300?"

Ans. Such tongs had been tested, but I don't remember that there was a reel tested at that time.

Cross-int. 197. When were the tongs tested?"

Ans. I do not remember accurately. I looked for drawings to settle that question, but I could not find them. I remember
132 the testing of the tongs, and that they were not as effective and satisfactory as I hoped.

Cross-int. 198. Were the alleged instructions for the making of Exhibit Daniels' Drawing 1 given by you before or after the tongs were tested?"

Ans. I cannot say. I have no memoranda, and am unable to say.

Cross-int. 199. Have you any recollection on this point? If you have, please state it.

Ans. I have not, as to whether it was before or afterwards.

Cross-int. 200. Then I understand that you do not recollect whether the tongs were used in connection with the reel or not?"

Ans. I do not. I had very strong hope that these lifting tongs

would succeed, as they would enable the men to pile the finished rods with very much less muscular effort than had been required up to that time.

Cross-int. 201. When did you start to build the tongs?

Ans. I am unable to say. I endeavored to find out, and asked Mr. Horace Young, the master mechanic, under whose immediate direction they were constructed, and he could not tell me.

Cross-int. 202. You know when they were finished?

Ans. I do not.

Cross-int. 203. You know who did the work on them; who built them?

Ans. I do not.

Cross-int. 204. Do you know who, besides yourself, were present at the test or tests made of them?

Ans. I think Mr. Horace Young was present. I don't remember any one else.

Cross-int. 205. Was it not in consequence of the failure of the overhead tongs that steps were taken to build the reel with the discharging platform here in controversy?

Ans. That was the reason that the reel was built with a lifting platform.

Cross-int. 206. I understand that in accordance with the plan illustrated in Exhibit Daniels' Drawing 2, a pair of reels was built and tested in the latter part of the year 1879, and that this apparatus proved defective in some respects; am I correct?

133 Ans. Yes, sir.

Cross-int. 207. After said apparatus was tested and its defects had been discovered, did not Mr. Daniels suggest certain changes in the apparatus?

Ans. I think he did.

Cross-int. 208. Are not those changes embodied in Exhibit Daniels' Drawing 3?

Ans. Yes, sir.

Cross-int. 209. What was done, after that drawing was made, in the direction of getting up the reel?

Ans. Some patterns were made, and some parts also made for a reel, in conformity with these changes, and upon further study of the question the work was stopped by myself, as the defects, and one serious one, would not be obviated by the proposed change.

Cross-int. 210. Please examine the paper which I now hand you, and state what it is, if you recognize it.

Ans. It is an order from myself, dated Feb. 2, 1880, to Mr. Young, and reads, "Please see Fred. Daniels about alteration in automatic rod reel," with my usual signature.

Cross-int. 211. Who was the Mr. Young referred to in this paper?

Ans. The master mechanic who had the control and management of the patent and machine shop.

Cross-int. 212. State whether or not he is the same Horace A. Young who has testified as a witness on behalf of Mr. Daniels in this cause.

Ans. He is the same man.

Cross-int. 213. In whose handwriting is the order referred to?

Ans. My own.

Cross-int. 214. What automatic rod reel is referred to in the order?

Ans. The one tested December, 1879, having a lifting platform.

(The counsel for Daniels offers in evidence the order above referred to, and of what the witness has testified, and the same is marked "Exhibit Charles H. Morgan No. 6, E. L. White, notary public, D. C.")

134 Cross-int. 215. After this time, and until you renewed your connection with the company in September, 1885, what, if anything, did you do in relation to the development and putting in practice of the invention in controversy?

Ans. Nothing.

Cross-int. 216. After you renewed your connection with the company in September, 1885, you found that steps had been taken in the interim to build reels involving the invention in controversy, did you not?

Ans. Yes, sir.

Cross-int. 217. And you, thereupon, without seeking the authority for so doing from the company, suspended the operations in that direction which were in progress, did you not?

Ans. It was not necessary to seek authority. That authority was conferred upon me when I was reinstated, and I exercised my rightful authority in suspending the construction of a defective and dangerous machine.

(Counsel for Daniels objects to the foregoing answer as irresponsive, and the witness is requested to answer the question.)

Cross-int. 218. (Cross-int. 217 repeated.)

Ans. I think I have answered the question.

Cross-int. 219. Is it impossible for you to answer this question without lugging in your opinion of the merits of your adversary's machine?

Ans. I was not aware that I was talking about my adversary's machine.

Cross-int. 220. After having suspended the operations which were in progress at the time of your return, you set to work to have plans made for an automatic reel, involving the invention in controversy from your instructions alone, did you not?

Ans. I did.

Cross-int. 221. How many reels were built before one that was satisfactory was obtained?

Ans. The first one was successful and far superior to anything we had tested, and, with slight modifications, was satisfactory.

Cross-int. 222. The first reel which you essayed to build, on this plan, after your return, was built along in the winter of 1885–'86, was it not?

135 Ans. I don't think it was built until after 1885. I think it was built in the early part of 1886. That it my remembrance.

Cross-int. 223. This reel had a Weston driving clutch and a leather brake, did it not?

Ans. Yes, sir.

Cross-int. 224. Where was this reel tested, in No. 1 or in No. 2 mill?

Ans. First tested in No. 2 mill.

Cross-int. 225. What was the result of that test; satisfactory or otherwise?

Ans. It was very encouraging.

Cross-int. 226. As a matter of fact, the Weston driving clutch and the leather brake did not work at all well, did they?

Ans. They did not continue to work as well as other clutches and brakes applied afterwards. In other words, we learned by trial what was required in this new machine.

Cross-int. 227. You then changed from this kind of reel to one having a cone clutch and leather brake, did you not?

Ans. I think we applied a disk brake after that, at the next trial. We did use a cone clutch.

Cross-int. 228. And the next and last thing that was done was to build the reel with the clutch and brake devised by Mr. Horace A. Young, was it not?

Ans. He did suggest the use of a spiral spring to keep the clutch in contact. I think that is the extent of what he had to do with it.

Cross-int. 229. With this exception, you think that you are entitled to all the credit of the thing that is actually in use now?

Ans. I think I made the design, whether I am entitled to credit or otherwise.

Cross-int. 230. You have stated in your direct examination that the directors, or some of them, of the Washburn & Moen Manufacturing Company worked against you in the Morgan and Lenox interference, and are working against you in this interference. Will you please name the persons to whom you refer?

Ans. I refer particularly to Mr. Charles F. Washburn.

Cross-int. 231. The same Charles F. Washburn, who, in
136 connection with Mr. P. L. Moen, was called as a witness in behalf of Lenox, in the interference entitled Morgan *v.* Lenox?

Ans. I am uncertain, from personal knowledge, as I was not present at the hearing referred to when the gentlemen named are said to have testified.

Cross-int. 232. Mr. Washburn is the vice-president of the Washburn & Moen Manufacturing Company, is he not?

Ans. Yes, sir.

Cross-int. 233. Who, besides Mr. Washburn, of the directors, worked against you in that interference, and is working against you in this, in your estimation?

Ans. Mr. P. L. Moen, president, and Mr. F. H. Dewey.

Cross-int. 234. How many directors are there besides yourself and the gentlemen named?

Ans. One other: a Mr. Whitin, who is not a resident of Worcester, and who has taken no active interest in the affairs of the company.

Cross-int. 235. And you are not sure whether he is working against you or not, are you?

Ans. I do not think he knows of these cases, or has any interest in them.

Cross-int. 236. Now, be good enough to state in what way the gentlemen named have worked and are working against you, as you allege.

Ans. In not making any effort to have the Lenox cases settled by arbitration, and refusing my application to have said cases settled by arbitration, and in encouraging Mr. F. H. Daniels to take out patents for this case in interference without any reference to myself, when they knew perfectly well that I claimed to be the inventor, and encouraging him in acts of insubordination as my assistant, with whom they knew perfectly well I had been upon the most cordial, confidential and friendly terms for many years, and had done everything in my power to promote his advancement, as I would have done for my own son.

Cross-int. 237. Are there any other grounds for your statement concerning these gentlemen?

Ans. I think there are many, which I do not wish to enumerate.

137 Cross-int. 238. Prior to the date of your last resignation from the office of general superintendent of the company, which, I believe, is May 2 of this year, did you not seek to be relieved from the operation of the agreement between yourself and the company, dated Sept. 7, 1885, a copy of which has been filed in evidence?

Ans. I told the president verbally some time before that I did not propose to continue my services under the agreement, or substantially words to that effect.

Cross-int. 239. Did you not indicate your willingness to remain with the company, provided you were not held to the obligations of that agreement?

Ans. I indicated in the letter of resignation, dated April 30, I think, that I would do so for a short time if it was desirable.

Cross-int. 240. Did you not indicate it some time before that, verbally or orally, to Mr. Moen, or some one other of the directors?

Ans. I may have done so; I do not remember that I did.

Cross-int. 241. Why did you wish to be relieved from the operation of the agreement? Was it for the same reason that you wished to be relieved from the operation of the agreement which preceded the one in question, and about which you have already testified?

Ans. I had no motive of that kind, but my service under that agreement, and with the treatment that I had received, and the results which I thought I could accomplish would be entirely unsatis-

factory to me, and as I have testified already, I had serious fears that my health would fail if I continued.

Cross-int. 242. If you had no such motive in mind, as you say you had in the last answer, why should you seek to be relieved of the obligations of the contract and yet remain as general superintendent?

Ans. I had come to regard my service under that agreement as a kind of servitude, or slavery, that I was unwilling longer to submit to.

Cross-int. 243. I understand that you are willing to remain as general superintendent, provided you are released from your obligations under the contract?

138 Ans Only for a very short time, to finish and put in operation the continuous billet mill heretofore referred to.

Cross-int. 244. In your direct examination, you have stated that most of the invention for which patent 220,300 was issued was made by you during a journey between May 10 and July 1, 1878. Where were you journeying during that period?

Ans. In Europe.

Cross-int. 245. The patent referred to contains a reeling device and a discharging device in the nature of overhead tongs, does it not?

Ans. Yes.

Cross-int. 246. Who, if any one, when you made said invention was travelling with you?

Ans. Part of the time Mr. F. H. Daniels was travelling with me. I do not remember whether I made that design during my outward passage, when I was alone, or on my return. I did make sketches on my outward passage for a rod mill and details.

Cross-int. 247. In your answer to Int. 51, you say there were modifications of the discharging device made after the journey referred to. Please state what they were.

Ans. The modification was to seize the coils from the inside instead of from the outside; and that proposed change I find by memorandum was described to Mr. F. H. Daniels and to Mr. George H. Scott, who were together at the time of the explanation.

Cross-int. 248. If you have said memorandum please produce it.

Ans. I have such memorandum. It is as follows:

"Friday, July 19, 1878. I have this day explained and described by sketches to George H. Scott and Fred. H. Daniels, my device for lifting arms or claws for automatic rod reel."

Cross-int. 249. Is there anything in the memorandum which you have read concerning the modification?

Ans. No, sir; not that is descriptive.

Cross-int. 250. Then how are you able to say, at this time, that you made such a description to them, on July 19, 1878, as is referred to in your answer to Cross-int. 247?

Ans. By memory, assisted by this memorandum, and by memorandum made by George H. Scott, who made the model.

139 Cross-int. 251. You have had a talk with Mr. Scott about this matter, have you not?

Ans. I have.

Cross-int. 252. And he has the memorandum containing the statement that you described the tongs to seize the coils from the inside?

Ans. He has a memorandum which I think would be satisfactory to corroborate what I have said as to the date, and as I expected Mr. Scott would testify in this case, I did not charge my memory with the precise language in his memorandum.

Cross-int. 253. Does it contain any statement to that effect, as you remember?

Ans. It does, sufficient in my judgment, with what followed immediately, to establish the fact.

Cross-int. 254. How recently have you read that memorandum, which is in the possession of Mr. Scott?

Ans. Three or four weeks ago.

Cross-int. 255. Did you state to Mr. Scott, on the occasion referred to, to wit, on July 19, 1878, that the arrangement of tongs to seize the coils from the inside was a modification of another arrangement?

Ans. Yes, sir.

Cross-int. 256. And did you state to him on that occasion that the other arrangement was to seize the coils from the outside?

Ans. I think I shall be able to establish that fact.

Cross-int. 257. Please bear in mind that you are not called on for your opinion, but simply the facts in the case, and be good enough to answer my question with that understanding.

Ans. I had already given him a sketch of such a device, and such a sketch was made on the margin of a drawing which he made in July, 1878.

Cross-int. 258. Was the grasping device, consisting of tongs arranged to seize the coils from the outside, your invention?

Ans. Yes, sir.

Cross-int. 259. Did you devise this arrangement after your return from Europe in July, 1878, or during your journey in Europe, between May 10 and July of that year?

140 Ans. My remembrance is that it was while I was away on the journey. I would state that I have not been able to find any of the sketches made during that journey, although I have made most dilligent search for the same.

Cross-int. 260. Were you ever shown a sketch or sketches of the same by any one during the time your were in Europe?

Ans. I was not.

Cross-int. 261. Do you recall that while Mr. Daniels and yourself were in Europe, and some time between the 10th of May and the month of July, 1878, you travelled together by rail from Paris to Cologne?

Ans. I know that we did go so from Paris to Cologne.

Cross-int. 262. You travelled during the night, didn't you?

Ans. I couldn't say. I do not remember whether it was by day or by night.

Cross-int. 263. On this occasion wasn't the subject of automatic reels talked over between yourself and Mr. Daniels?

Ans. I do not remember that anything was said about automatic reels.

Cross-int. 264. Do you remember that he said anything about his visit to Mr. Bedson's works, and what occurred there?

Ans. No, sir; when he made such a statement, in giving his evidence during this hearing, it was the first time I knew he claimed to have an upright reel before seeing mine, on the return voyage as I remember, and his statement was a complete surprise to me at that time.

(Adjourned.)

WASHINGTON, *May* 26, 10 a. m., 1887.

Cross-int. 265. At whose expense did Mr. Daniels go abroad the second time?

Ans. At the expense of the company.

Cross-int. 266. In your answer to Int. 77, at the close thereof, you say: "We went through various rod mills in France, Germany and England, returning July 1, 1878, when I directed Mr. Daniels, giving him outlines for the construction of a new rod mill, which I had made an especial study of during this journey." Was the rod mill afterwards built?

141 Ans. It was.

Cross-int. 267. Was it the mill now known as No. 2 mill?

Ans. Yes, sir.

Cross-int. 268. That mill is composed of pairs of horizontal rolls in series with twisting guides between the pairs, for the purpose of giving a quarter turn to the rod as it passes from one pair of rolls to the next, is it not?

Ans. Yes, sir.

Cross-int. 269. Did you do that? Did you invent this mill?

Ans. Yes, sir. On my way over to England, on the journey referred to, between May 10 and July 1, 1878, I found on reaching England and talking the matter over with Mr. Bedson, that I was not the first inventor, and that he had made an experimental trial and abandoned the plan of a continuous series of horizontal rolls.

Cross-int. 270. Did you inform Mr. Bedson that you intended to build such a mill?

Ans. Yes, sir; unless I found something better during my journey.

Cross-int. 271. When and where did you so inform Mr. Bedson?

Ans. I think it was at Manchester, England, at the works of Johnson & Nephew, in the latter part of May, 1878.

Cross-int. 272. During this journey, did you not visit the Roy works, Witten, Westphalia?

Ans. I did visit a works of which Roy was the works' manager. I do not remember who the proprietors were.

Cross-int. 273. Was there not at the works in question a continuous mill, having pairs of horizontal rolls with twisting guides between the pairs of rolls for the purpose of giving the rod the proper turn as it passed from one pair of rolls to the next?

Ans. There was an experimental mill, which, in my judgment, was of no practical use.

Cross-int. 274. Who, if any one, visited the Roy works with you on that occasion?

Ans. Mr. Johnson and Mr. Bedson, before alluded to, and Mr. F. H. Daniels.

Cross-int. 275. State whether or not Mr. Bedson obtained a
142 British patent for a mill containing continuous series of horizontal rolls.

Ans. Yes, sir; I think he did.

Cross-int. 276. What is the date of that patent? In what year was it taken out?

Ans. I do not know.

Cross-int. 277. It was taken some years before you went abroad in 1878, was it not?

Ans. I think it was.

Cross-int. 278. And you knew of it when you went abroad in 1878, did you not?

Ans. I did not.

Cross-int. 279. The No. 2 mill was in use at the time you last severed your connection with the company, was it not?

Ans. I think so.

Cross-int. 280. Who, if any one, invented the twisting guides used in the No. 2 mill?

Ans. My belief is that Mr. George Bedson, before referred to, invented the twisting guides. I invented a modification of the twisting guide, so that more or less twist could be given at pressure, and took out a patent for the same. But in practice, we learned the required amount of pitch, or the rate of twist to be given, and found the adjustable twisting guide unnecessary.

Cross-int. 281. Please give the number and date of the patent referred to in your last answer.

Ans. I do not remember; I haven't the number and date, or a memorandum of it here.

Cross-int. 282. I hand you a Patent Office copy of the specification and drawing of patent No. 220,033, dated Sept. 30, 1879, and ask you to state whether this is not the patent in question.

Ans. Yes, sir; this is the patent referred to.

Cross-int. 283. Was your said patented guide in use for any length of time?

Ans. Not very long, as I have already said.

Cross-int. 284. I hand you a Patent Office copy of the specification and drawing of patent 224,839, dated Feb. 24, 1880, granted to C. H. Morgan and F. H. Daniels, and ask you whether the guide
143 shown and described therein was not the one which was actually used in the No. 2 mill, up to within a year or two.

Ans. Some parts of this patent may have been used up to within the time mentioned; but I don't recognize any essential part covered by the claims, as having been in use.

Cross-int. 285. Is it not a fact that the guide illustrated in Figs. 6 to 13 inclusive, of the drawings of said patent 224,839, was in the No. 2 mill up to within a year or two, or probably three years ago?

Ans. I don't think it was. There may have been.

Cross-int. 286. And is it not the fact that that same guide, with modifications made by Mr. Daniels, is in use today in the works of the company, and has been for some time past?

Ans. I don't recognize anything there as made by Mr. Daniels, apart from myself. My answer to the question is, No, sir.

Cross-int. 287. I understand you to say that you invented the No. 2 mill on your voyage over to Europe. When did you make sketches of the same?

Ans. During the voyage and on my arrival in London.

Cross-int. 288. And when after that, if at all?

Ans. The modifications of the guide which I have referred to, and which have been alluded to in the patents just referred to, were made subsequently. I cannot fix the exact dates when I conceived of the first one. I cannot tell exactly about the sketches, but think it was on the journey home that I made the first sketch of the guide.

Cross-int. 289. Was it not at Witten, Westphalia, instead of Manchester, England, that you talked over the continuous mill with horizontal rolls with Mr. Bedson, and that he informed you that he had tried that plan and it wouldn't work?

Ans. I did have a talk with Mr. Bedson at Witten, and before leaving Witten he told me that he had changed his mind, or words to that effect; but I am confident that I had the first conversation with him at Manchester.

Cross-int. 290. So that he told you it wouldn't work at Manchester, and told you he changed his mind at Witten; is that correct?

144 (Counsel for Daniels states that he prefers to have the witness answer this question without reference to the printed record in the interference case of Morgan *v.* Lenox, which he has in his hands.

Counsel for Morgan desires to have it noted that the witness laid down the record before the counsel for Daniels had finished dictating his statement.

The witness states that he had not examined the record, nor that part of the record, for many weeks.)

Ans. Both of those statements are true, and my remembrance is, that he repeated his statement made at Manchester, in the evening of the day on which we witnessed the trial of the Roy machine, and I remember distinctly that the next morning he came to my chamber door partly dressed, and told me he had been thinking over the horizontal mill question and had changed his mind.

Cross-int. 291. Who paid the expenses of your journey abroad?

Ans. The Washburn & Moen Manufacturing Company. I, however, have made a number of journeys to Europe in search of information, as well as recreation, at my own expense.

(Adjourned.)

WASHINGTON, *May* 27, 9 a. m., 1887.

The WITNESS: I desire to make a correction in one of my statements of yesterday (answer to Cross-int. 93) in regard to the inclined reel, or the reel with an inclined axis. I think that trial was made after the drawing "Exhibit Daniels Drawing 1" was made, though I have no memorandum to verify the fact.

Redirect examination:

Int. 1. In your answer to Cross-int. 248, you read a memorandum dated July 19, 1878. Please state where you found that memorandum.

Ans. In my private memorandum book or diary.

Int. 2. Please give the date when you became interested in the Pielsticker invention.

Ans. Just previous to my sailing for England, in July, 1885, I filed a caveat for an invention for producing wire rods, by a continuous process, from fluid metal. Soon after my arrival in London, I learned that a certain man by the name of Pielsticker
145 had obtained a patent in England for a device for producing continuous bars of metal directly from the fluid state, and that an application had been made for letters patent in the United States. I expressed a desire to obtain an interest in the said Pielsticker invention, should a patent be granted for the United States, as I thought it could be used in combination with my own invention for making wire rods from fluid metal, before alluded to.

Int. 3. At the time you became interested in the Pielsticker invention, what was your connection with the Washburn & Moen Manufacturing Company?

Ans. I was stockholder and director in the company, not in their employ.

Int. 4. Do I understand that it was after you had severed your connection with the company, in 1885?

Ans. It was.

Int. 5. Have you recently examined letters patent of the United States, Nos. 362,687 and 362,688, granted May 10, 1887, to Charles F. Washburn and Fred. H. Daniels? If so, state briefly to what they relate.

Ans. They are modifications of Pielsticker's plan, and are to make wire rods by continuous process from fluid matter.

Int. 6. Has the Pielsticker plan, to which you refer, been patented in the United States? If so, please give the number and date of the patent.

Ans. It was patented Sept. 15, 1885, and is numbered 326,147.

Int. 7. What was the date, as near as you can give it, of your negotiations with the company regarding the Pielsticker invention?

Ans. After my re-engagement with the company in September, 1885, I told the directors that I had made an invention for producing wire rods from fluid matter, and of the so-called Pielsticker invention, which I recommended a trial of, giving them the names of said Pielsticker's agents, Messrs. Haskins & Davis, one member of

the firm residing in London and another in Boston. I also stated, at this time or subsequently, and before negotiations for the use of said Pielsticker invention were begun, that in case the company should use said invention I should be personally benefited.

146 Int. 8. What was the result of your negotiations with the company regarding the Pielsticker invention?

Ans. The company had negotiations with said Pielsticker and his agents, or one of them, and it was finally voted by the company not to proceed with the negotiations or test his invention.

Int. 9. Was there any settlement made between yourself and the company regarding this matter; and if so, what?

Ans. Yes, sir; I had made drawings and had patterns made for testing the Pielsticker invention, at my own expense, and the company desiring that I should do nothing further in this direction, paid me one thousand dollars, and the drawings and patterns were turned over to the company.

Int. 10. Was this done before the applications upon which the Washburn and Daniels patents, before referred to, were made?

(Objected to by counsel for Daniels as irrelevant and immaterial.)

Ans. A settlement was made May 28, 1886. I find the patent No. 362,687, issued to Messrs. Washburn and Daniels was filed, or the application was filed, May 24, 1886.

Int. 11. Please give the date when you prepared plans for testing the so-called Lenox scheme.

Ans. Very soon after my engagement with the company, in September, 1885.

Int. 12. Was there any interference pending at that time between yourself and Mr. Lenox?

Ans. Yes, sir.

Int. 13. Please look at the declaration of interference in the cases of Morgan *v.* Lenox, a copy of which I now show you, and give its date.

Ans. When the prior question was answered, I understood the counsel to be inquiring about another matter. I see by the copy of the record of the Patent Office that the interference was declared in Feb. 19, 1886.

Int. 14. At the time of preparing those plans and making the tests, were you personally interested in the success of the scheme?

Ans. Yes, sir.

Int. 15. Did you exercise your best skill in the preparation of those plans?

147 Ans. I did, as I was personally interested that the plans should succeed, as I had a pending application for patents which would be involved in the trial and success of that part of the scheme which we made trial of in the month of May, 1886.

Int. 16. Please give the history of your transactions with the company in respect of the patents for the salt coating referred to in cross-int. 122?

Ans. On my return home from the journey to Europe, alluded to, between May 10 and July 1, 1878, I found that Mr. Kenerson

and my son, Charles Henry Morgan, had become uneasy in regard to their patented invention of salt coating, and thought that it should be speedily adopted, that they might realize some money for its use, and found said Kenerson was determined to visit his brother, in the employ of the Cleveland Rolling Mill Company, and competitors of our company in the manufacture of wire, for the purpose of interesting them in the use of salt coating. Whereupon I recommended to the directors to make arrangements with said Kenerson and Charles Henry Morgan, to obtain an interest, so as to have the exclusive use of the invention. Nothing being done after repeated solicitation, said Kenerson and Morgan urged me to take a personal interest in this invention; whereupon I said I would act as a trustee for them in case they would assign the patent to me, and any subsequent improvements they might make in wire coating, in order that the company should have exclusive use of the invention. Shortly afterwards I made an arrangement with the company for such exclusive use, and assigned the patent to the company, they being fully aware that I would receive personal benefit from the arrangement, to which they made no objection.

Int. 17. Do you know if the assignment to yourself, in trust, is of record in the Patent Office?

Ans. I think it is.

(Notice is given by the counsel of Morgan that the record of such assignment will be referred to in the argument of this case.)

Int. 18. In the preparation of plans for the continuous billet mill, referred to — cross-int. 146, was any part of the plan suggested by Mr. Daniels adopted?

Ans. No, sir.

148 Int. 19. Please enumerate all the inventions of Mr. Daniels that have been used at the works of the company, as far as you know.

Ans. The only patented inventions that I recall are the guide patent referred to, in which I was associated with him in taking out the patent, and the adjustment of rolls in a rod mill, the latter being in use on one of the mills of the company.

Int. 20. You have been examined as to the causes of dissatisfaction with certain of the directors, and the reasons for your belief that they were opposing your interests. What led you to suspect such a state of things?

(Objected to by counsel for Daniels. The question has already been fully answered, the witness having stated in cross-int. 236 the grounds upon which he believed that the directors named were working against him, and having in cross-int. 237 indicated that, while there might be others, he did not wish to enumerate them.

Counsel for Morgan states that reference to cross-int. 236 will show that it calls for the way in which the directors have worked against the witness.)

Ans. As I have before stated, when I became acquainted with the so-called Lenox scheme, which was produced in February, 1885, as referred to in this case, and after which an interference was declared

between Mr. Lenox and myself, I filed a protest in the Patent Office, which has been referred to in this case. And I would further add, that shortly after my reinstatement in September, 1885, as general superintendent of the company, Mr. Charles F. Washburn put into my hands a certain agreement between Mr. E. S. Lenox and the company, whereby the company were obligated to test the various plans and devices set forth in the scheme shown in February of 1885, and subsequently, and in case by the use of the devices and plan set forth by said Lenox, a saving in the cost of producing wire rods by the company on their continuous mills of not less than one dollar per ton above the cost of producing them, at the date when the contract or agreement was made with said Lenox, then the company was to pay said Lenox a royalty of fifty cents per ton on rods so produced for a term, I think, of seventeen years; and in case the company should fail to test the devices set forth in said Lenox's
149 plans within a certain time specified by said agreement, the company were held to pay Mr. Lenox the royalty of fifty cents per ton, whether such devices were patentable by said Lenox or not. After examination of the said agreement, I returned the same, with certain plans which had been made, as I understood, subsequent to the final presentation of the scheme in February, 1885, and stated to Mr. Charles F. Washburn and Mr. F. H. Dewey that I thought the company would be obliged to pay Mr. Lenox the fifty cents royalty per ton on all the rods which they should produce by continuous rolling; whereupon Mr. Washburn replied substantially that he did not think that the company would be held to pay the royalty under the agreement, unless Mr. Lenox was able to patent his devices. I then said, substantially, that if that was the case, I had applications for patents which, if granted to me, would save the company that royalty of fifty cents per ton. I said, substantially, at that time or shortly afterwards, that there would probably be an interference declared between Mr. Lenox and myself. I was encouraged to prosecute my application, and to believe that, in case an interference was declared between Mr. Lenox and myself, that the company would pay the cost thereof. I will also state that after said interference was declared, I made request to have the matter settled by arbitration, in a friendly way, and was told by Mr. Washburn that such a settlement would not be satisfactory to Mr. Lenox, and that it had better be settled before the Patent Office; but I had no suspicion that I should be opposed by the directors of the company, until the hearing in the interference case here in Washington, in May, 1886, when I discovered in the cross-examination that Mr. Lenox was in possession of information which I supposed was only known to the directors and myself.

I would like to add, in order to make my answer more intelligible, that the protest filed in the Patent Office, and which has been heretofore referred to in this case, set forth some of the ways in which the company had worked against me.

(Counsel for Daniels has refrained from interposing an objection to this recital of the alleged grievances of the witness at the hands

of the Washburn & Moen Manufacturing Company, although such recital, to say the least, is of doubtful propriety. He, however, suggests that it is manifestly improper to retry the Morgan and Lenox interference in this proceeding.

Counsel for Morgan states that it will appear from the record that these grievances were drawn out on cross-examination, and that in fact, the whole record of the Morgan and Lenox case was introduced and incorporated in the record in this case by the counsel for Daniels, and it was therefore incumbent upon the counsel for Morgan to put the matter in its true light.

Counsel for Daniels replies that he is perfectly willing to have the correctness of the allegation of Mr. Morgan's counsel, as to the Morgan and Lenox interference in this proceeding, judged by reference to the direct examination of the witness. See for example Ints. 10 to 13, inclusive.)

Cross-int. 21. Are the statements made in that protest true?
Ans. They are.

(Counsel for Morgan gives notice that at the hearing of this interference he will refer to the records of assignments under the Prosser and Stover patents referred to, and also to all the patents that have been mentioned in the foregoing depositions. Counsel further gives notice that as soon as the depositions are printed, so that they can be conveniently referred to, a motion will be made for leave to amend the preliminary statement of Morgan filed in this interference.

Counsel for Daniels states that any delay in the motion to amend the preliminary statement is at Morgan's risk.)

Recross-examination

Cross-int. 1. In answer to redirect Int. 19 you enumerate the patented inventions of Mr. Daniels in use at the works of the company. Will you please enumerate the patented inventions of your own, relating to rolling mills, which are in use at the works of the company?

Ans. One for adjustment of rolls, I do not remember the number and date; one for automatic reeling, entitled "reel for coiling wire rods," patented Feb. 24, 1880, No. 224,941. That is all I think of.

CHAS. H. MORGAN.

Sworn to and subscribed before me May 27, A. D. 1881.
[SEAL.] E. L. WHITE,
Notary Public, District of Columbia.

Examination closed.
[SEAL.] E. L. WHITE,
Notary Public, District of Columbia.

Before the U. S. Patent Office.

DANIELS
v.
MORGAN.

Interference.

Chas. H. Burleigh, Esq., att'y for Daniels.

SIR: Please to take notice that on Tuesday, June 7, beginning at 2 o'clock p. m., at the office of J. Henry Hill, No. 344 Main street, Worcester, Mass., before J. Henry Hill, a Unites States commissioner, I shall proceed to take the testimony of George H. Scott, A. A. Barker, Wallace Metcalf, F. H. Morgan, R. A. Morgan, Thomas H. Dodge, all of Worcester; T. M. Drown, of Boston, Mass., and others, as witnesses on behalf of said Morgan.

The examination will continue from day to day until completed. You are invited to attend and cross-examine.

Respectfully,

A. POLLOK,
Att'y for Morgan.

Service acknowledged this — day of June, 1887.

COMMONWEALTH OF MASSACHUSETTS, *Worcester Co.*

JUNE 3, 1887.

I, Henry Eveleth Hill, of Worcester, in the county of Worcester, of Commonwealth aforesaid, hereby on oath do depose and say, that I notified Frank H. Davis, within referred to, of the within-mentioned hearing, by leaving in the hands of Charles H. Burleigh, his attorney of record, a true and attested copy of the within.

HENRY EVELETH HILL.

WORCESTER, *June* 3, 1887.

Subscribed and sworn to before me—

[SEAL.] G. H. ESTABROOK,
Notary Public.

152 Before the Commissioner of Patents.

In the Matter of the Interference between the Application of F. H. DANIELS and that of CHARLES H. MORGAN for Device for Reel for Wire-rod Rolling Mills.

Depositions of witnesses examined on behalf of Charles Hill Morgan, pursuant to the annexed notice, at the office of J. Henry Hill, No. 344 Main street, Worcester, Mass., on Wednesday, June 7, 1887, at 2 o'clock in the afternoon.

And on the day aforesaid, at the hour and place aforesaid, the parties being absent, at their request the hearing was continued to Wednesday the 8th, and next day of the same June, at ten o'clock in the forenoon, at the same place.

J. HENRY HILL,
United States Commissioner.

And now, on this eighth day of June aforesaid, at the hour and place aforesaid, the hearing was — pursuant to adjournment.

Present: James Eveleth Maynadier, Esq., on behalf of Mr. Daniels; Anthony Pollok, Esq., on behalf of Mr. Morgan.

Deposition of George H. Scott.

GEORGE H. SCOTT, a witness produced on behalf of Charles H. Morgan, being duly sworn, in answer to interrogatories propounded to him by Mr. POLLOK, counsel for Charles H. Morgan, answered as follows, to wit:

Int. 1. What is your name, age, residence and occupation?

Ans. My name is George H. Scotts; my age is thirty-six this month; my residence is 41 Lincoln street, Worcester, Mass., and am superintendent Morgan Spring Company.

Int. 2. What was your occupation in the years 1878 and 1879?

153 Ans. Draughtsman for the Washburn & Moen Manufacturing Company.

Int. 3. If you remember, state how many draughtsmen were employed at that time by the Washburn & Moen Manufacturing Company.

Ans. I can't say as to that, because the number was varying, sometimes there was one, and sometimes three or four, and I don't know but more. I think a little further on, in 1879, there were more.

Int. 4. Who were they? Give their names and present place of residence, if you know, and also give the times of the employment of each.

Ans. Mr. Daniels was one, Mr. Andrews and Mr. Angstrom; Mr. Hemmenway. I don't know their residence now, with the exception of Mr. Daniels. I couldn't give the time of the employment of each.

Int. 5. Was there not a time during your employment in 1878 and 1879 when you were alone; and, if so, when was that?

Ans. As I remember, it was about the time when Mr. Morgan was in Europe, or soon after his return. I cannot give the dates.

Int. 6. During your employment by the Washburn & Moen Manufacturing Company, who had charge of the draughting-room, and under whose direction and superintendence was the work done?

Ans. Mr. Morgan's—Mr. Charles H. Morgan.

Int. 7. What was Mr. Daniels's position?

Ans. As I understood it, he was a draughtsman, and I think he had charge of the chemical laboratory too, at that time, but I can't say.

Int. 8. What, so far as you could observe, were the relations between Mr. Morgan and Mr. Daniels at that time?

Ans. Very friendly.

Int. 9. In any way different from those of Mr. Morgan and the other draughtsmen or other employees under him?

Ans. Yes, sir; I should judge that most of the new work was shown to him before the rest of the draughtsmen, so far as I could see.

154 Int. 10. Was Mr. Morgan in the habit of consulting with him?

Ans. I knew he was on some of his work; but whether it all went through his hands, I do not know.

Int. 11. Did Mr. Morgan show a marked preference, and was not his intercourse with him quite confidential?

Ans. Yes; he did.

Int. 12. What was your impression of the treatment that Mr. Daniels received at the hands of Mr. Morgan?

(Objected to by Mr. Maynadier, as not only grossly leading, but as otherwise manifestly improper.)

Ans. That he was used well.

Int. 13. Did not Mr. Morgan show a particular interest in Mr. Daniels?

Ans. So far as I could see, he did.

Int. 14. What were the duties of a draughtsman at the Washburn & Moen Manufacturing Company's works while you were employed there?

Ans. To make working drawings for all parts of machines from ideas given them by Mr. Morgan.

Int. 15. Were there not any sketch books kept, and what for? And what was done with them?

Ans. I remember seeing one; it was for setting down ideas in reference to some new machine. I do not know what was ever done with it.

Int. 16. Whose property was that sketch book which you have reference to?

Ans. I do not know; do not remember.

Int. 17. Do you know Mr. Wallace Metcalf?

Ans. I do.

Int. 18. Was he not a draughtsman there when you were there?

Ans. He was. He was there only a short time; but he was there. He was in the works some time, but not as a draughtsman.

Int. 19. You have stated that Mr. Morgan was in Europe some time during your employment with the company. State, if you know, when he returned to Worcester, and whether you did any work for him immediately upon his return; and if so, what it was.

155 Ans. He returned to Worcester about the 1st of July, 1878. I did work for him immediately after his return. The first work that I did that I know came directly from him was upon an automatic reel. I have a record of a die-holder that I think came from him. The real work was on the 3d of July.

Int. 20. What did you do on the 3d of July?

Ans. From the time book I kept, I find I was drawing in the

draughting-room, ten hours on that day. I have a sketch of an automatic reel that I made that day.

Int. 21. Will you please produce it and explain what it represents.

Ans. The sketch represents two ways of taking the rod from the mill to be coiled up. One is to seize the end of the rod as it comes from the mill, and holding that end with the reel as it revolves around on the reel. Another way is by having the rod run into the reel while the reel is in motion. In the right-hand sketch, the first method, the reel has a vertical spindle through which a shaft extends from top to bottom. On the top of this shaft an arm projects out on one side of the reel. At the end of this arm is a device for seizing the first end of the rod as it comes from the rolling mill. The reel is first set in motion, while the arm remains stationary. Then the rod from the mill strikes this arm, the end of it is gripped and starts up with the reel, and is wound up around a row of pins projecting from the face of the reel.

The left-hand sketch represents a reel mounted on a vertical spindle, the same position as the first one, having two rows of pins projecting from the face upwards, and while this reel is running, the rod is poured in between these two rows of pins and wound up between them.

Int. 22. I see on the drawing the initials "G. H. S."; also the date of July 3, 1878. Will you please state whose initials they are, if you know, and by whom were they and the date inscribed, and when was that done?

Ans. The initials are mine. The date was put on at the time of making the drawings, and the initials too. They were put down there by myself.

Int. 22½. On the right-hand side of the same sheet I per-
156 ceive a number of sketches which seem to have no relation to the reel itself. State, if you know, what they represent, and when and by whom they were made?

Ans. They are sketches for a grapple, representing an idea of Mr. Morgan's, to take the coil of wire off from the reel. I think they were made by Mr. Morgan, at that time, in working at that reel.

Int. 23. Please explain the sketch describing the different parts of the mechanism of the grapple, and state how it was intended to operate.

Ans. They consisted of three hooks suspended from a track overhead, and caused to open or close on the coil of wire by means of a long arm projecting out from one side of the grapple. After the grapple was closed onto the coil, it was lifted off from the reel, and run along and deposited upon a car, or wherever they wanted it.

Int. 24. How was the coil to be seized, from the outside or the inside?

Ans. From the outside,

Int. 25. Did Mr. Morgan ever explain to you the construction and operation of a grapple that was to seize the coil of wire from

the inside instead of the outside? and state, if you know, when that took place, and who was present.

(Objected to as wholly immaterial; also because not in dispute and fully shown by the record in one of the patents referred to in C. H. Morgan's deposition.)

Ans. I commenced to work on the grapple on the 19th of July, A. D. 1878, in the presence of the rest of the draughtsmen there; it was in the draughting-room, and it was to take the coil from the inside. Mr. Morgan explained it to me.

Int. 26. Was Mr. Daniels present when this explanation was given?

Ans. Whether he was present just at this particular time or not, I do not remember; but he was present when Mr. Morgan was explaining the reel to me and told me how it was to work, or how it was intended to work; and he was in the habit of looking over my drawings and with Mr. Morgan.

(Counsel for Morgan offers in evidence the drawing or
157 sketch shown by the witness, and requests the commissioner to mark it "Exhibit Scott."

Counsel for Mr. Daniel objects to the whole deposition as irrelevant and immaterial, and waives cross-examination.)

GEO. H. SCOTT.

District of Massachusetts, June 8, 1887.

Subscribed and sworn to before me—

J. HENRY HILL,
United States Commissioner.

Deposition of Wallace Metcalf.

WALLACE METCALF, a witness on behalf of Charles H. Morgan, being duly sworn, in answer to interrogatories propounded to him by Anthony Pollok, Esq., counsel for Mr. Morgan, answers as follows:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Wallace Metcalf; my age is thirty-two; I reside at 31 John street, Worcester, Massachusetts; and I am a draughtsman by occupation.

Int. 2. If you were ever a draughtsman at the Washburn & Moen Manufacturing Company's works, state in what years you were so employed.

Ans. In 1878 and 1879; a part of the time.

Int. 3. While there, and thus employed, how was the work done, under whose directions, and, generally, what was the practice in that department?

Ans. Mr. Charles H. Morgan had the general charge of the department; and Mr. Fred H. Daniels was foreman of the room. Mr. Morgan usually gave Mr. Daniels sketches or ideas from which to work on. Mr. Morgan coming in the drawing-room about every

day, would dictate to the draughtsman any correction or error, any error shown or correction to be made.

Int. 4. What were the relations in these days between Mr. Morgan and Mr. Daniels?

Ans. He seemed to be the one to whom he gave most of his ideas for working out the plans, and quite intimate at times.

158 Int. 5. What was the general opinion among the employees of the works, in regard to Mr. Daniels's opportunities, and whom he is indebted to for them?

Ans. A good many I have heard say that Mr. Morgan had done a great deal for him, and that he had a soft job. A good many have said that they would like to — been in his place—some one to be a father to them, as Mr. Morgan was to him.

(The whole deposition is objected to as irrelevant, and cross-examination is waived.)

WALLACE METCALF.

DISTRICT OF MASSACHUSETTS:

Subscribed and sworn to this eighth day of June, A. D. 1887, before me—

J. HENRY HILL,
U. S. Commissioner.

Deposition of Philip L. Moen.

PHILIP L. MOEN, a witness produced on behalf of Charles H. Morgan, being duly sworn, in answer to interrogatories propounded to him by Anthony Pollok, Esq., counsel for Mr. Morgan, says:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Philip L. Moen; my age is sixty-two; my residence is Worcester, Massachusetts; and am a wire manufacturer.

Int. 2. How long have you known the parties to this interference, respectively?

Ans. I must have known Mr. Morgan between twenty-two and twenty-three years, I should think—I speak from memory. And the other party, Mr. Daniels, some fifteen or sixteen years.

Int. 3. Does your acquaintance with Mr. Daniels date with his employment by the Washburn & Moen Manufacturing Company?

Ans. It does not. It does not begin there.

Int. 4. When did it begin?

Ans. During or about 1871 or 1872.

Int. 5. Was that before he was employed by the company?

Ans. Yes, sir

Int. 6. Do you know when he was employed? If so, state it. State also how he came to be employed by the company.

159 Ans. I do. I found him in the employ of the company upon my return from Europe, in 1873. I answer without consulting my pay-roll, and that is my belief. Mr. Daniels was a graduate of the Technical school, and our superintendent, Mr. Morgan, wanted such a man to do draughting, and hired him, I think.

Int. 7. Had you any personal knowledge of his qualifications as a draughtsman?

Ans. I had no personal knowledge, but understood he was hired upon the recommendation of our superintendent, Mr. Morgan, who hired all such persons.

Int. 8. As president of the company, I understand you made two agreements with Mr. Daniels: one about five years ago, and the other about two years ago. Will you state whether you had negotiated personally with Mr. Daniels the terms of these agreements?

Ans. The first contract, the written contract, was made about the first of January, A. D. 1882, for three years. The second contract was made for five years, to take effect on the first day of January, A. D. 1885. I did not negotiate personally with Mr. Daniels in these agreements. We made them through Mr. Morgan. Whether the first was submitted to our directors, I am unable to say, but I believe it was by their authority. The second agreement was made by Mr. Morgan, by special instruction from the directors. Before their instructions were given to Mr. Morgan to make this last engagement, Mr. Morgan made a statement to us that Mr. Daniels was a valuable man to the corporation in respect to his abilities as an engineer and draughtsman, particularly in the matter of constructing rolling mills, wire machinery, and other machinery connected with our business; and if he (Mr. Morgan) should leave our employ by reason of death or removal, he knew of no other person who could fill his (Morgan's) place so well or better. We had so much confidence in Mr. Daniels's abilities as far back as 1878, that we sent Mr. Daniels to Europe to join Mr. Morgan, who had already departed three or four or five days before. Mr. Morgan's special mission in behalf of the company was to look up the matter of the best constructions of rolling mills, both past and up to the time of their visit to Europe. Aside from Mr. Daniels's evident
160 abilities in this direction, we were induced to have Mr. Daniels join Mr. Morgan, as Mr. Morgan had at different times, when he went on trips of investigation for us, stated that he had found them advantageous to have another bright and observing person make observations with him at the same time; and Mr. Daniels returned after an absence of about seven weeks with Mr. Morgan, I think, but am not certain about that. Mr. Morgan and Mr. Daniels, I think, reported to the directors what rolling mills and wire-drawing machinery they had seen during their absence. In consequence of these facts, gathered during their absence, beside the information already in their and our possession, the directors authorized Mr. Morgan to have constructed a rolling mill, a continuous rolling mill, No. 2, located at our Grove-street works. Mr. Daniels, under the direction and in consultation with Mr. Morgan, made the drawings for this rolling mill, and invented what is known as the twist-guide, a patent for which was issued in the names of Mr. Morgan and Mr. Daniels.

Int. 9. What opportunities did you have in 1878, and before that, of judging of Mr. Daniels's superior abilities, so as to inspire the

confidence in him you have manifested in sending him to Europe to aid Mr. Morgan in his mission?

Ans. The year before, that is, in 1877, Mr. Daniels went to Europe with Mr. Morgan, and especially to Sweden. Mr. Morgan returned sooner, early by some months, some four or five or six, than Mr. Daniels did. Upon Mr. Morgan's return, he informed us that he and Mr. Daniels had visited many of the most important iron and steel works in Sweden, when they both observed the operations of making iron and steel by the Bessemer and Siemens-Martin processes, and charcoal iron made by charcoal or nobbling fires as they are called. Almost all these great works made the products by these three processes just named, into blooms, bars and rods. Many of these rolling mills had then what might be called good facilities for rolling into rods, but probably not equal to the rolling mills in Germany and Great Britain. I knew that, and I had no doubt from my previous knowledge of him, that he had improved these opportunities. What I have said was what Mr. Morgan informed us upon his return of what he and Mr. Daniels had seen together. When Mr. Daniels returned, he rehearsed to us
161 himself what he had seen in Sweden, and these recitals corresponded with the statements that Mr. Morgan had made to us above indicated.

Int. 10. How often did you see or speak to Mr. Daniels after he had returned from his trip in 1877, which I shall call his voyage of opportunities, and before he again went to Europe in his 1878 mission?

Ans. I cannot state with definiteness precisely how often, but repeatedly, as the new rolling mill was a matter of great interest and moment to us all. I was occasionally in the drawing-room where the drawings were going on for this new continuous rolling mill.

Int. 11. In repeating the question, which you will kindly answer, I wish to call your attention to an error or misunderstanding of my question. The drawings of the continuous mill were not going on until the return of Mr. Morgan and Mr. Daniels in 1878.

Ans. Oh, I cannot say how often, I saw him frequently.

Int. 12. The opportunities, therefore, which you had to judge of his abilities were confined to conversations you had with him, were they not?

Ans. Largely. Yes; mainly.

Int. 13. Mr. Morgan, when giving his testimony on his own behalf, stated in substance that Mr. Daniels was sent in 1878 at his (Morgan's) special request,—a request of Charles F. Washburn. Have you any reason to doubt that statement or to deny it?

Ans. I have no doubt that Mr. Daniels's going in 1878 was the result of a conference between Mr. Morgan, Mr. Washburn and myself. As to who first made the suggestion, I am not able to state.

Int. 14. You have volunteered the statement that Mr. Daniels had invented what is known as the twist-guide, and that a patent was issued in the name of Mr. Morgan and Mr. Daniels. Will you please state what reason you have to know or believe that Mr. Dan-

iels made that invention, and that he afterwards perjured himself by swearing that he is the joint inventor with Mr. Morgan?

Ans. My statement already made is this: that it has been for some time so reported to me, that is, that the main credit due for this invention belonged to Mr. Daniels, and that still Mr. Morgan may have so far deserved a fraction of the credit by reason
162 of the fact, which I believe often occurs, that a conception of an invention may be made by two parties at so nearly the same time, and two parties comparing notes of their thoughts as to such a conception as to the time when, that they both might find it somewhat difficult to make a considerable difference of time as to conception. I have no reason to believe that he perjured himself, or either of them did.

Int. 15. Do you believe everything that is reported to you?

Ans. No, sir; if I did I should believe myself a very bad man, and many of my neighbors, too.

Int. 16. But you do believe what was reported to you that Mr Morgan had no part, or a mere fractional part, in the invention of twisted guides?

Ans. I think I have previously testified that I believe Mr. Daniels is entitled to the greater share of the credit of this invention; while I have also testified that it may be possible that Mr. Morgan might be entitled to some share in this invention.

Int. 17. What evidence or proof have you of this statement, which, if true, would invalidate one of your most valuable patents, and place both Mr. Daniels and Mr. Morgan in a most awkward position, to say the least?

Ans. I have no,—what would be termed,—proof in a court of justice, and have only the reports which I have had from time to time to justify my belief as to the origin of this invention, reports which are somewhat distant in time, so that I could not state the time, or when I heard them, or from whom.

(Counsel for Daniels here states what he did not feel justified in doing before that, in his judgment, Morgan's counsel misunderstands the statements made by the witness, and he hereby calls attention to the fact that both the words "made" and "invented" were qualified by direction of, and consultation with Mr. Morgan. He therefore suggests that all reference to perjury and invalidity of patents are baseless.)

Int. 18. Your giving credence to reports derogatory to Mr. Morgan, and your readiness to swear to your belief of the same, seem to exhibit an unfriendly feeling for Mr. Morgan. Is this feeling not to be attributed to Mr. Morgan's present attitude towards your company?

163 Ans. I do not admit, nor am I conscious of having any feeling that could induce me to make any statement that I did not believe to be true.

Int. 19. Mr. Morgan has severed his connection with your company, has he not?

Ans. He has.

Int. 20. And you have some claims against him which he resists, have you not?

Ans. We have made a claim for some drawings, made during the time Mr. Morgan was receiving a large salary from us, which have not yet been met or answered by Mr. Morgan; but Mr. Morgan has not notified me, who made the claim in the writing as president of the corporation, that he does not intend to accede to our claim. For this reason we are ignorant of his intention to resist our claim.

Int. 21. Did you not make that claim in writing in the belief and expectation that it would be resisted?

Ans. No, sir, I did not; but made the claim in the belief that it was a rightful claim for us to make.

Int. 22. In the meantime you are pursuing a course calculated to injure Morgan?

Ans. We do not deem ourselves responsible for making a claim we deem a righteous claim.

Int. 23. The drawings you claim, were they not made at Mr. Morgan's own expense, and by a draughtsman hired by Mr. Morgan, who did the work at Mr. Morgan's own house?

Ans. From the best information that has come to us, two draughtsmen have been employed on his own premises. We do suppose that one of the draughtsmen may have been paid for his services by Mr. Morgan, while the other has been employed on those premises at the expense of the company I represent. All this work that has been done by Mr. Morgan has been done in the discharge of his duty as an engineer and superintendent, who had promised the directors that he would build a rolling mill for them, commonly called a billet mill.

Int. 24. Did not Mr. Morgan furnish you copies of all the drawings that are or may be claimed? and did not he also offer,
164 without pay or compensation, the professional advice that may be needed for completing the billet mill?

Ans. Mr. Morgan may have or may have not furnished copies of all the original drawings necessary for the construction of this mill. But what we claimed and requested to have furnished us was that we should have all the original drawings made and needful for the construction of the mill referred to. After leaving our employ, Mr. Morgan made us two propositions in relation to the completion of the mill referred to. The first one was as follows: He to be paid at the rate of ten thousand dollars per annum during the time it would be necessary to consume up to the completion of the mill. In addition to the compensation at the rate of ten thousand dollars per annum, he made the further condition that he should be relieved from all other and many duties which he had discharged up to this time, for which the entire compensation for his services of every name and description was at the rate of ten thousand dollars per annum. The above proposition was declined. A second proposition made by Mr. Morgan was to finish the mill without any cost to us. As our corporation is not in the habit of receiving professional services or aid without paying a fair price for the same, and

we deemed ourselves able to complete the mill without Mr. Morgan's proffered help, his last proposition was declined.

(Adjourned.)

JUNE 9, 9 a. m., 1887.

(By Mr. POLLOK :)

Int. 25. To come back to our twisted guide; was it not Mr. Daniels who told you that Mr. Morgan really had no part in the invention, and that he alone was the true and first inventor?

Ans. It was not. Mr. Daniels never made any such statement to me. I never heard of his making any such statement to anybody else.

Int. 26. Then was it Mr. Morgan himself who confessed it to you?

Ans. It was not he. He made no such statement to me.

Int. 27. If it was neither Mr. Daniels nor Mr. Morgan, can you suggest any human being who, of his own knowledge, could
165 have told you the story of the twisted guide machine, as given in your deposition?

Ans. I cannot.

Int. 28. Mr. Morgan had every facility, had he not, to have drawings made at your works? He there had draughting-rooms, drawing instruments, and materials, and any number of skilled draughtsmen to do the work, yet he had some drawings made at his own house by draughtsmen in his own pay. How do you account for it?

Ans. He had, or could have had. He had draughting-room, drawing instruments and materials, and had skilled draughtsmen, and whatever he wished to procure. He was not limited. He could have had a room, had he asked for it, to which he alone had access, and his draughtsmen and his employees. Mr. Morgan, on one or two occasions, told me he was having, or had had, drawings done at his own house. This was his preference, I suppose, and I do not remember that this plan of draughting was ever suggested to me or my associate directors, who would have preferred, by all means, to have had this work done on their own premises, so that they could have from time to time, as the draughting advanced, seen the drawings, had them explained to them, and been made entirely familiar with the manner in which the scheme of building machinery, which they had authorized their superintendent to construct, was proposed to be carried out. I believe that Mr. Morgan preferred to keep these matters wholly to himself. I came to this conclusion, because I do not now remember that he ever offered to show me or my associate directors what were his designs and plans as indicated upon the drawings; and none of these plans and drawings were seen by us, to the best of my recollection, except on single or detached blue prints, when it became necessary to put them in the hands of those persons who were expected to execute the work from these plans. So secretly was his work carried on, that on one notable occasion, while Mr. Morgan was away on a vacation for four weeks, by consent of the directors, I went to the

premises owned by Mr. Morgan, on Lincoln street, in this city, and made inquiry for the person that I had learned was the chief draughtsman employed upon this work. I was not directed to the room, but he was sent for; and when he came I informed
166 him of my desire to know if he was working upon a drawing for the billet mill, as I and my associates felt anxious lest the mill should not be finished in season to meet our necessities, or at the time that Mr. Morgan had told us the mill would be fit for use. He seemed agitated, and I was not able to get much satisfaction out of him, though I told him the drawing he was at work upon was work that was being done by Mr. Morgan for our company. I might have several theories to account for this: one is, that Mr. Morgan was bent upon being very secretive about all the drawing connected with this mill. His other reason, I suppose, may have been that he did not wish that any one, not even his employers, should have the opportunity to criticise or make any comments upon his drawings.

Int. 29. By his employers, you mean, I suppose, the directors of the Washburn & Moen Manufacturing Company?

Ans. I do.

Int. 30. Whom of the directors do you consider competent to supervise Mr. Morgan's plans?

Ans. Myself, and our vice-president, Mr. Charles F. Washburn, I regard as competent to comprehend, and even criticise, well-drawn plans, especially when explained to them by the designer, where such explanations might be needful. These two persons, with the opportunities above indicated, are competent to ask questions and appreciate the answers made.

Int. 31. Did Mr. Morgan ever refuse to give you or Mr. Washburn any explanation, or submit to your inspection any plans or drawings when invited by you to do so, unless, perhaps, your inquiries were directed to unfinished inventions of Mr. Morgan's?

Ans. He never refused to submit to us, or explain to us, plans that we asked to see, that I now recall. But heretofore it was his almost uniform practice to exhibit to us plans and designs connected with our improvements.

Int. 32. Since when did he change his uniform practice?

Ans. I cannot at this moment fix the time, but would state that at the time, and subsequently, it was understood that we would require different reeling facilities than those in times past employed by us and others, and which were needful to utilize the rolling mills that had been running, and other mills which were
167 specially to be built for the purpose of rolling rods of considerably smaller diameter than those heretofore rolled by us.

Int. 33. Now, will you be good enough to fix the time as nearly as you can by some date or occurrence, the time of which can be determined?

Ans. I cannot now fix any date or dates. My answer made in reply to the previous interrogatory recalls the fact of this apparent withholding from us his plans.

Ans. 34. Was it not at the time and in consequence of the famous Lenox interference?

Ans. It was manifested at this time, and possibly before this; certainly before the improvements Mr. Lenox sought to obtain patents for, there existed a great necessity that we should have better reeling facilities to enable us to make rods of the diameter that the mill known by us as rod mill No. 2 was promised by Mr. Morgan should roll.

Int. 35. My question is directed to the time of Mr. Morgan's express preference for having the drawings of contemplated improvements made at his own house, rather than at the works, and is not directed to the occasion which rendered the reeling facilities necessary. Will you kindly answer the previous question?

Ans. I cannot fix the earliest time, nor any time, I fear, when Mr. Morgan intimated to me, or my associates, that he preferred and should make drawings for improvements contemplated and determined upon for us.

Int. 36. Was not the attempted supervision or direction, in regard to the preparation of plans by Mr. Morgan, such an interference with his duties and responsibilities as the directors had pledged themselves to abstain from?

Ans. It was not. We never made such a pledge not to examine our work in any man's hands as it progressed.

Int. 37. Did you not, as president of the company, issue an order substantially covering such a pledge?

Ans. I am confident I did not; though it is most likely that in defining the duties of the suporintendent, in conformity with our agreement with Mr. Morgan when we engaged his services, that we stipulated and agreed that he should be responsible for the
168 performance of certain duties; but in no agreement that I recall did we ever intimate that we would surrender our right to know how, whatever any person in our employ, whether high or low, was discharging the duties assigned to him or agreed to be performed by him.

Int. 38. Was it not understood by yourself and your fellow-directors that Mr. Morgan's object in having his plans worked out at his house was to avoid conflicts in regard to invention, and to avoid such incidents as the Lenox affair, or to remove the temptation to ambitious young men to palm off his inventions as their own upon credulous directors?

Ans. I am not aware that there was any understanding. On the contrary, I deny that the directors felt the necessity of having extended over them the protection implied in the interrogation. We did not request Mr. Morgan, or intimate the necessity of his preparing these drawings at his own house.

Int. 39. You have evidently misunderstood my question. I put it in another form, or rather, I ask you another question more directly in point. Did not Mr. Morgan state to you in person that he had to have a private draughtsman to protect his inventions, but nevertheless the company had had, and would have, the full benefit of such private work?

Ans. Mr. Morgan may have told me, and I believe said, that it was desirable that he should have a private draughtsman, that he might protect himself in his interests in the inventions he might make. I do not remember that he made any promise that the company had had, and should have, the full benefit of such private work. It was unnecessary for him to make such a promise, as it was stipulated in our agreements that we should have the advantage of all his improvements and patented inventions, subject to such limitations as these agreements contained.

Int. 40. When did the company first formulate or express any objection to Mr. Morgan having work done on the plans and improvements at his house, or elsewhere, outside the premises of the company?

Ans. To the best of my recollection, the first written protest was made by me, by a letter which I addressed to Mr. Morgan early in February last; for, until I received a refusal from his
169 draughtsman to see the drawings, which Mr. Morgan had told me he would have made, in his last February absence, I had supposed I could see such drawings and that it was my right to see at any time for the asking.

Int. 41. You knew at the time that Mr. Morgan was very jealous in regard to his inventions, did you not; and that he had special reasons, in view of the interferences that had sprung up with your employees, and with your encouragement?

Ans. I did; but I believe that Mr. Morgan then and now had such confidence in my integrity, that it was perfectly safe for him to show me, as the official head of our corporation, the plans for the construction of mills then being made for us by him, and under his care, and that he ran no risk in doing so.

Mr. POLLOK: Of course not.

Int. 42. Then why did you go to his house or private office and apply to his private draughtsman for information which you knew he, the draughtsman, in Mr. Morgan's absence, was in honor and duty bound to refuse to impart?

Ans. I did not know that he was in honor and duty bound not to exhibit the drawings then in process, and I hoped, well advanced towards completion; but supposed it was my right, and needful that I should see them, as I was exceedingly anxious to determine if the drawings were well advanced; that the billet mill, so called, would be finished, at the latest, by the middle of May. If Mr. Morgan had been a contractor to build such a mill, at a stipulated price, I would have deemed my action in this direction fully improper.

Int. 43. Did you, at any time, since Mr. Morgan left the service of your company, attempt to obtain the services of Mr. Morgan's private draughtsman?

Ans. I did.

Int. 44. Have you any objection of stating what it was for?

Ans. To further the interests of my company, and because I thought I had a right to do so, the draughtsman having informed

my intermediate that he was open to an engagement, as he supposed.

Int. 45. Will you please to explain what you mean by your intermediate?

170 Ans. I mean the person whom I sent to see if this draughtsman could honorably make an engagement with us.

Int. 46. Do you not employ intermediates to report to you the doings and conversations of Mr. Morgan?

Ans. I do not. I consider it an unhandsome insinuation, although, under certain conceivable circumstances, it might be my duty to do so.

Int. 47. Have you not summoned to your office certain of your own employees who were seen or known to have had conversation with or visit Mr. Morgan, and call them to account?

Ans. I am not aware of having done so. The question is so vague I do not know what I am expected to answer to, as to any person, or persons, or object, or thing.

Int. 48. Does the Washburn & Moen Manufacturing Company produce their own rods? If not, where do you procure them from?

Ans. We produce rods, but decline to disclose the places from which we procure them when we buy them.

Int. 49. Is it a trade secret?

Ans. It is not a trade secret.

Int. 50. Would the information injure your business?

Ans. I cannot foretell,—it might do so,—what the consequences might be.

Int. 51. Do you get them from abroad?

Ans. Sometimes.

Int. 52. Those that come from abroad come through the custom-house, do they?

Ans. Yes; we do not smuggle our goods.

Int. 53. Have you any objection to say whether you import any wire from Domnarvet?

Ans. I do object to giving that information.

Int. 54. On purely business grounds?

Ans. Largely.

Int. 55. On what other grounds?

Ans. I do not care to state unless I am obliged to; for I deem it my duty not to divulge unnecessarily the sources from which we obtain material used by us.

171 (Counsel for Daniels here states that in his judgment the entire deposition of Mr. Moen is wholly irrelevant and a mere waste of time; and it has for the last hour been forced upon him that the undue length and pointedness of the examination is mainly due to the feelings of Mr. Morgan, who has prompted his counsel to put questions nearly all the morning, which seem to provoke and annoy the witness by compelling the witness to waste time which is, as all parties well know, valuable to the witness, and which seems to Daniels's counsel is wholly misspent, so far as

this case is concerned. He therefore protests against a further continuance of this examination, unless the question shall be pertinent.

Counsel for Morgan requests the commissioner to note down all legal objections that may be made, but requests particularly that speeches of counsel should not be taken down, as they unnecessarily encumber the record, already voluminous.)

Int. 56. Do you know who is the general manager of the iron works at Domnarvet?

Ans. I do not know who he is at this time, but suppose it may be Mr. Ljungberg.

Int. 57. Do you know of any communication that was addressed, on behalf of your company, to Mr. Ljungberg on a matter relating to this interference?

Ans. I do not.

Int 58. Do you know Mr. Angstrom, draughtsman formerly in your employ, and now at Domnarvet, Sweden?

Ans. I remember that such a person was once in our employ in Worcester, and believe I have been informed that he is in the employ of the works just referred to.

Int. 59. Have you any knowledge or information in regard to any communication to or from Mr. Angstrom, by letter or cable, relating to this interference?

Ans. I have no knowledge, but think I heard some time since that both Mr. Morgan and Mr. Daniels had written this gentleman in regard to the matter now being investigated. I don't know what answer was made to either party.

Int. 60. Who informed you that Mr. Morgan had written him?

172 Ans. I am not positive; it must have been my son, it may have been Mr. Daniels, it may have been somebody else.

Int. 61. Your son spent considerable time in Domnarvet, and is on intimate relations with, and a correspondent of, Mr. Ljungberg, is he not?

Ans. My son did spend considerable time in Domnarvet, learning the art of making iron, steel, etc., and has maintained infrequent correspondence with Mr. Ljungberg.

(Noon recess.)

(By Mr. POLLOK:)

Int. 62. Will you state what is the company's interest in Mr. Daniels's application involved in this interference?

Ans. We have a right, the exclusive use of the invention, subject only to a shop right to Mr. Daniels in case he should leave our employ; and this we obtained under our contract, negotiated by our superintendent, Mr. Morgan.

Int. 63. Does your contract also include the cost of the application and expenses of this interference?

Ans. I don't remember that there is anything in the contract about this—I don't remember it, if there is.

Int. 64. But you pay the counsel and all the expenses of this interference, do you not?

Ans. We have so far.

Int. 65. Have you any arrangement or understanding with Mr. Daniels contingent upon his success in his interference; if so, what?

Ans. We have not.

Int. 66. You have taken an active part in this interference, on Daniels's behalf, have you not?

Ans. We have.

Int. 67. You issued an order to Mr. Morgan, while yet in your employ, to instruct me to give Mr. Daniels all the time he may want to obtain proof on his behalf, did you not?

Ans. I have no knowledge of an order issued by me or any one else to that effect. It may be so, but I have no recollection.

Int. 68. You have a very high estimate of the value of this invention, have you not?

Ans. We regard it as a very valuable invention.

173 Int. 69. Have you any idea of its commercial value; if so, will you give an expression of its value in dollars and cents? Approximately, of course.

Ans. I have not. I have never heard of any estimation of it being made. It would be too much like counting chickens before they were hatched, to make an estimation. So many inventions promise pecuniary gains or savings, and are afterwards superseded by better inventions, it is quite unsafe to reckon up savings by an improvement.

Int. 70. Will you please look at the paper I now hand you, and state what it is.

Ans. This letter is dated Nov. 1, A. D. 1886, and signed by me as president of the corporation, and the whole tenor and purpose of it seems to have been an effort on our part to secure some additional time in order that Mr. Daniels might have in which to prepare his case, which his interest and ours seem to demand; and a request only made in the interest of fair play.

(Mr. Pollok, counsel for Morgan, offers the letter above referred to, and asked to have it made Exhibit Moen.

Mr. Pollok desires to have it stated on the record that Mr. Moen has attended voluntarily this examination, and without the service of a subpœna.

Daniels's counsel thereupon states that he learned that Mr. Pollok was intending to serve a subpœna on Mr. Moen, advised him to attend without that formality.

The whole deposition is objected to as irrelevant and immaterial, and cross-examination is waived.)

PHILIP L. MOEN.

DISTRICT OF MASSACHUSETTS:

Subscribed and sworn to, this ninth day of June, A. D. 1887, before me—

J. HENRY HILL,
U. S. Commissioner.

174 *Deposition of Albert A. Barker.*

ALBERT A. BARKER, a witness produced on behalf of Charles H. Morgan, being duly sworn, in answer to interrogatories propounded to him by Anthony Pollok, Esq., counsel for Mr. Morgan, answers as follows:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Albert A. Barker; my age is thirty-four; I reside in Worcester, Mass.; and am an architect and solicitor of patents.

Int. 2. What was your occupation in 1878 and 1879?

Ans. I was a draughtsman at that time; the first part of the year 1878 I was in the office of Thomas H. Dodge; the last three months of 1878 I was at Washburn & Moen Manufacturing Company's works. My answer is simply from memory. Having now referred to my memorandum I find that I returned to Mr. Dodge, Dec. 28, 1878. Subsequently, on Feb. 1, 1879, I opened an office on my own account.

Int. 3. Under whose direction was the work of draughting done at Washburn & Moen Manufacturing Company's while you were employed there?

Ans. Mr. Morgan had full charge of that department, as superintendent of the works, but Mr. Daniels, acting as head draughtsman, instructed me at times as to the work to be performed. I supposed at the time that Mr. Morgan gave his instructions to Mr. Daniels, and they were carried out by him, knowing, as I did, that he had charge of the draughting department.

Int. 4. In 1878, during the time of your employment there, I understand that a comparatively large force of draughtsmen were employed to prepare the plans of the continuous mill, then constructed, was there not?

Ans. There were some from six to eight draughtsmen then employed there, as I now recollect; but as I was employed principally on other work, I cannot answer as to the proportion of work performed in relation to rolling mills.

Int. 5. If you know the practice and routine of the draughting department at that time, will you state whether or not there were any sketch books, and what was this object, and to whom did they belong, also what was done with them?

175

Ans. There were sketch books used. Their object was to explain by illustration such ideas as were required by the draughtsmen to be carried out in a more complete form—that is, so far as my own work related, either Mr. Morgan or Mr. Daniels, and as I now recollect, principally Mr. Morgan, would, as they explained some idea to be drawn out, make a rough sketch, or explain to me sufficiently so that I was able to do so myself, of a device or machine which was required to be subsequently drawn out more accurately. I am unable to say to whom these sketch books belonged, but supposed at the time that they were ordered by Mr. Morgan or Mr. Daniels, and paid for by the company the same as other draughting supplies. I am unable to answer as to what was done with the books after they

were filled with these sketches, as I do not recollect ever having seen them after having been filled with these preliminary sketches, and others supplied to fill their place.

Int. 6. Did you yourself ever make any sketches in any of said sketch books?

Ans. I did, frequently.

Int. 7. Will you examine the book I now hand you, and state whether you recognize it as one of the sketch books in use while you were employed at Washburn & Moen Manufacturing Company's, in 1878?

(The book containing Daniels's sketches 1, 2, etc., is handed the witness.)

Ans. Yes; it is one of the books. I recognize the book, because I find sketches on two pages made by me, with dates noted at the head of the pages.

(Adjourned.)

AUG. 10, 9 a. m., 1887.

Int. 8. Will you please point out the two pages which you say contained the sketches made by yourself, and state what the sketches represent, and also give the dates that you find at the head of the pages?

Ans. (The witness points out two pages.) This page
176 represents one of the sketches referred to in my previous answer, and this other. The first referred to represents a double rotary reel, and is dated Nov. 7, 1878. The second represents what is known as a tub reel, having a rotating delivering device arranged overhead for laying the wire rod in a coil around a central cone in said tub; and is dated Saturday, Nov. 16, 1878.

(The first page is marked "Exhibit Barker 1," and the second page is marked "Exhibit 2, J. Henry Hill, U. S. com'r.")

Int. 9. Were these sketches made in regular discharge of your duty at the Washburn & Moen Manufacturing Company's?

Ans. They were.

Int. 10. For whom were these sketches made?

Ans. My services were paid for by the Washburn & Moen Manufacturing Company, and I suppose they were made for them, through their agents, as stated in a former answer.

Int. 11. Did you have any conversation with Mr. Daniels in regard to the sketch dated Saturday, Nov. 16, 1878? If so, please state the substance of the conversation

Ans. I did. In the course of other business, the matter was brought up. I should say, from a month to six weeks ago, Mr. Daniels, showing me the sketch, asked if I remembered having made it. I answered in substantially the same language as stated in my answer to Int. 8. As far as I recollect, there was no conversation in relation to this sketch other than pertaining to the question of whether I made it or not. I answered, that I could definitely and did fully identify it as one of my sketches.

Int. 12. Did not Mr. Daniels at the same time ask you if you would testify for him that he, Daniels, directed you to make it?

Ans. Upon the matter being called to my attention, I do remember now of some such conversation, but I think it was some time previous to the time above referred to; and I answered, in substance, that all I could swear to was the fact of my having made such sketch, and, as I understand the matter, I could not be of any benefit in testifying either for him or Mr. Morgan; and concluded, from subsequent events at the former hearings, that he, as well as Mr. Morgan, coincided with my ideas in the matter, not being summoned as a witness.

177 Cross-examination by JAMES E. MAYNADIER, Esq., counsel for Mr. Daniels:

Cross-int. 1. Do you know who made sketches on the page just before the first one you pointed out, and on the page just before that?

Ans. I could not swear positively; but I should say that, as Mr. Daniels's sketches appear all through all this book, which other sketches, I should judge, were his, from the writing connected with them, that these sketches may have been made by him. Yet, as Mr. Morgan often illustrated his ideas by sketches, he may have been the author of them. The date at the upper right-hand corner I am quite certain was done by myself, while the writing and figures upon the opposite page look more like Mr. Daniels's; but in regard to the drawings, as I have already stated, I am unable to positively identify them.

Cross-int. 2. I think you are mistaken about the date, Nov. 7, 1878, being in your handwriting. Please look at the date again, and also at the same date on the sketch made by you, and the date Nov. 11, following it on the page immediately after you find sketch, and also on the page after that, and also the date Nov. 15, 1878, on the page just below your second sketch, and the date Nov. 18, 1878, on the page after your second sketch, and state which of those dates you know to be in your handwriting.

Ans. I cannot state positively that any of these dates referred to are in my own handwriting, from the fact the writing in connection with the date on the page following my second sketch is not my handwriting, and the word "November" of said date does not look like my handwriting; but the figures 1878, if appearing separately, I think I should positively say were written by me; but as they appear to be a continuation of the writing in connection with the same, I can't positively identify them.

Cross-int. 3. Don't you now think that the date, Nov. 7, 1878, at the top of the page, just before the first sketch made by you, is not your handwriting?

178 Ans. From the facts just ascertained by my examination of the dates and writing referred to in my last answer, I think I may positively say that it is not my handwriting, although the figures resemble figures as I made them at that time.

Cross-int. 4. Do not the two sketches on the page just before the

first sketch identified by you show the same contrivance that is shown in the first sketch identified by you?

Ans. The sketch shown on the next previous page is evidently a crude idea, which is represented by the sketch upon the next following page; and I should judge, upon comparing the two sketches, that the sketch which I made was a carrying out in a more perfect form the ideas roughly expressed on the previous page. The sketch made on the second previous page to the one made by me is evidently a very crude idea of the same principle,—two reels being shown at the extremities of a rotary shaft; but the sketch is so imperfectly carried out, I am unable to state further as to whether or not it was intended to convey the same ideas shown on the other two pages. Then, again, this page has no date, whereas the other two bear the like date of Nov. 7, 1878.

Cross-int. 5. About how many sketch books were in use in the fall of 1878, when you were employed in the draughting room of the Washburn & Moen Manufacturing Company?

Ans. I am unable to state; but I should judge some three or four.

ALBERT A. BARKER.

DISTRICT OF MASSACHUSETTS, *ss*:

Subscribed and sworn to, this tenth day of June, 1887.
Before me—

J. HENRY HILL,
United States Commissioner.

179 *Deposition of Charles F. Washburn.*

CHARLES F. WASHBURN, a witness produced on behalf of Charles H. Morgan, being duly sworn, in answer to interrogatories propounded to him by Anthony Pollok, Esq., counsel for Mr. Morgan, says as follows:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Charles F. Washburn; my age is fifty-nine; my residence is Worcester, Mass.; and I am the vice-president and secretary of the Washburn & Moen Manufacturing Company.

Int. 2. Do you know the parties to this interference?

Ans. I do.

Int. 3. In his deposition, given on the fifteenth day of March last past, Mr. Daniels gave an account of an interview he had with you in August, 1885, in consequence of which, he so said, he wrote you a communication; now, will you please produce it?

Ans. I will, if I have it.

Int. 4. Have you any doubt that you have it?

Ans. No, if such a communication was received.

Int. 5. Have you no recollection whether you received it or not?

Ans. Not distinct, with reference to a letter described as this has been.

Int. 6. Was not your attention called to Mr. Daniels's deposition, given on the 15th of March last?

Ans. I do not remember that it was.

Int. 7. Were you not present on that day, during the examination of Mr. Daniels?

Ans. I have been present at the examination of Mr. Daniels; that is, have been in and out while Mr. Daniels was being examined, but do not remember what was testified to at all, in detail; neither do I remember the date.

Int. 8. To refresh your memory, I will read to you the passage in Daniels's deposition which my question referred to. (Counsel reads and then adds:) Do you know that communication I refer to?

(The book of the record is handed to the witness for his examination.)

180 Ans. I know that I received a communication of the nature referred to.

Int. 9. What became of it?

Ans. Probably put on file.

(Counsel for Morgan requests witness to look first, and to produce it at the next meeting.)

Int. 10. It has been stated that the Washburn & Moen Manufacturing Company has an interest in all the inventions of Mr. Daniels, such interest being an exclusive license, subject to a shop right to Mr. Daniels in case he left the company's employ. Does this arrangement with Mr. Daniels apply also to inventions made jointly with others?

Ans. I think, in our agreement with Mr. Daniels, the word "invention" or "inventions" is used without modification.

Int. 11. Can you give no better answer?

Ans. Not without some further suggestion.

Int. 12. Well, the only further suggestion I can make is to ask you to produce the contract, or a true copy of the same.

Ans. I will do so, unless some objection is made by our counsel.

(Counsel for Daniels here states that he is unable to see how this contract can throw any light upon the controversy in this case, and he therefore advises the witness that it should not be produced and made part of the record, for the reason that it would then become a public matter. But inasmuch as he is strongly of the impression that Mr. Morgan and his counsel are both fully aware of its contents, he does not regard the matter as of any importance whatever other than to keep the private agreements between Mr. Daniels and the company out of the public record; and he suggests that it would be very easy for the two counsels to agree upon all that can be possibly material, and which can be found in that contract without encumbering the record with details which are, in their nature, private, and which can by no possibility have any bearing whatever on this controversy. He further states that he understands the contract to cover all of Daniels's inventions, whether joint or several.

Counsel for Morgan states that he has already requested the magis-

trate not to take down any arguments or speeches of counsel which are calculated to obstruct the examination and curtail the
181 time now remaining for taking the testimony of Morgan, and he now repeats the request. To caution the witness as to his duty, he adds that the papers, as well as the answer, are called for, not for the information of counsel but for the Commissioner of Patents, who alone is the judge of their materiality and relevancy, and any attempt at suppressing the evidence will be at the risk and peril of the witness.)

Int. 13. One of Mr. Daniels's grievances against Mr. Morgan, as testified to by him, was, that foreign patents had been taken out for the joint invention of Morgan and Daniels in 1879. Were not those patents taken out by the direction and with the consent and approval of the company, and at the expense of the company?

Ans. I cannot answer, without reference to our records.

Int. 14. Is your mind a blank on this subject?

Ans. So far, that in order to answer the last question intelligently, I must first look at the records.

Int. 15. Well, then, look at the record, and report at the next meeting, and prepare yourself to answer the question?

Ans. I will do so.

Int. 16. It appears from Daniels's testimony that in the spring of 1885 you negotiated the purchase of some patents from Mr. Daniels for twenty-five hundred dollars. What was the object that you then had for paying that amount for these eight patents?

Ans. Our object was to own the patents.

Int. 17. Did you consider them of any value?

Ans. Yes.

Int. 18. Why do you say that? Did you have them examined, or do you know what they are for, or was any part of them ever used?

Ans. In order to answer your question. Yes, I did at the time. I am not certain at this moment.

Int. 19. Who examined the patents for you?

Ans. The board as a whole, and I think Mr. Morgan in particular.

Int. 20. Did Mr. Morgan say or report that these patents contained anything worth the amount you paid therefor?

Ans. I don't remember in detail what he said about them.

Int. 21. Was it not deemed good policy to pay Mr. Daniels
182 twenty-five hundred dollars, under any pretext, to make him feel comfortable, in view of some other matters then pending?

Ans. No such incentive as that existed, that I know of.

Int. 22. Are you ready now to produce Mr. Daniels's communication to you of August, A. D. 1885?

Ans. I hand you herewith a copy of that communication, taken from Mr. Daniels's copy book, not being able to lay my hand on the original, to be marked "Exhibit Washburn 1."

Int. 23. Have you any means of knowing that it is a copy of the communication that you received from Mr. Daniels in 1885?

Ans. None here, except my recollection of the original.

Int. 24. Do you recollect now the nature and subject of the communication?

Ans. Yes.

Int. 25. What has occurred since yesterday that refreshed your recollection of this communication?

Ans. Reading the copy of Mr. Daniels's copy book.

Int. 26. Are you ready now to produce the contract with Mr. Daniels, or a copy of the same?

Ans. I am ready to present the original to counsel and to furnish a copy of the same, except of that part of the original which the counsel in this case have agreed shall be omitted in making said copy.

(Witness produces the original, and it is agreed that the copy marked "Exhibit Daniels Contract" be used instead of the original, which is returned to the witness.)

Int. 27. Have you examined the records of the company, with a view of ascertaining whether the foreign patents taken out for the joint inventions of Messrs. Morgan and Daniels, in 1879, were procured by the direction and with the consent and approval and at the expense of the company?

Ans. I have, and find nothing which enables me to answer that question.

Int. 28. Where did you look for evidence?

Ans. By proxy, through our accounts with our patent solicitor in London.

Int. 29. That is to say, you made no personal investigation,
183 and your proxy looked only for the accounts of your patent solicitor in London. Do I understand you correctly?

Ans. Yes; except that my proxy may have looked elsewhere than through our accounts with the London solicitor.

Int. 30. But did not report whether he did so, and with what result. Is that so?

Ans. He mentioned only the accounts with the London solicitor.

Int. 31. Did you ever pay any charges for foreign patents to Mr. Thomas H. Dodge, of Worcester?

Ans. I cannot state, from recollection.

Int. 32. When did you begin to have direct relations with, and accounts from, your London patent agent, or solicitor, as you call him?

Ans. Ten years ago, more or less.

Int. 33. Your London patent agent is Mr. Justice, is he not?

Ans. Yes.

Int. 34. Mr. Justice was introduced, by name, to your company, by Mr. Morgan, was he not?

Ans. I have no knowledge upon that subject, except that the personal relations between the Justice family and Mr. Moen's family I have heard referred to as pleasant and somewhat intimate, for some time before I was aware that Mr. Morgan knew any of the Justice family.

Int. 35. When did you first know that Mr. Justice, the London patent agent, was a member of the Justice family that Mr. Moen had known?

Ans. Some time before 1879.

Int. 36. Mr. Justice, whom Mr. Moen is acquainted with, was formerly a merchant in Philadelphia and New York, was he not?

Ans. I have no personal knowledge on that subject.

Int. 37. You understood so, didn't you?

Ans. I have so understood.

Int. 38. Please state what is the capital of your company, and, to save questions, state also what is its surplus capital, what has been its income for the last seven years, and what have been its dividends declared to its stockholders.

Ans. The capital is fifteen hundred thousand dollars; sur-
184 plus capital I cannot state from recollection, and the same answer in reference to the remaining parts of the question.

Int. 39. I don't care to put you to the trouble of going back to the works, for the purpose of finding out, nor have I the time to wait for such information, as the examination of witnesses on Mr. Morgan's behalf must be closed today; but I will endeavor to assist your memory by asking you, with reference to the dividends, whether they were not between sixteen and twenty per cent. upon the capital, annually, from 1880 to 1887 inclusive.

Ans. Yes; for about that time.

Int. 40. Your surplus capital, doesn't it exceed a million and a quarter?

Ans. I do not feel at liberty to answer the question, as such answer might be regarded by our company as being an unauthorized disclosure of what they might consider private business.

Int. 41. If it be contrary to your business policy I shall not insist upon your answer, although I deem it important in view of the attitude of the parties to this interference, in order that the Commissioner of Patents should clearly understand the situation. Will you now state whether, as secretary of the corporation, you are not required to file a statement at the proper public State office, an annual statement, showing the exact condition of the company, including assets and liabilities, which statement is accessible to the public?

Ans. Such is no part of my duties.

Int. 42. Do you mean to say that it is the duty of some other officer of your company? If so, please state whose.

Ans. The treasurer's.

Int. 43. A large portion of your income was derived from the patents for inventions, was it not?

Ans. Yes; if I understand what you mean by a large—a considerable portion, I should say, using both of these words in their smaller rather than their larger sense.

Int. 44. I understand it is, or was, the practice at the company's works to keep sketch books in the draughting-room. Do you know of such practice?

Ans. I never had occasion to know in detail about such
185 books. My attention in that direction has been called to drawings, mainly such as could be brought from the draughting-room to the directors' room.

Int. 45. Do you know, also, that these sketch books were the company's property, and contained the studies and original sketches, calculation- and other data of importance to the company, procured at considerable time and expense?

Ans. I don't know what is meant by sketch books, or rather what you mean by sketch books; a sketch may be large or may be small, may be intended to be permanent and to be a part of the archives of the company, and to be the property of the company, or may be small and hastily made, and intended only for the pocket memorandum book of the person making such sketches or memoranda; and in the last case, the book, whatever it may be called, I should say would be the property of the one carrying the book, with the general understanding that its contents, so far as they relate to the business which the owner is paid for attending to, should be devoted to the interest of such business.

Int. 46. It appears that Mr. Morgan, when he returned from Europe in 1878, in organizing a draughting-room, established what has been called or known as the sketch-book system: that is to say, a number of books were kept in use, in which sketches and calculations, relating more or less to the work then in progress, were gathered and preserved. One of such books, containing sketches from various persons in the employ of the company, was produced and put in evidence by Mr. Daniels. I now hand it to you and ask you to explain it, and state whether or not you regard it as the property of the company.

(Counsel for Daniels states that he has no doubt that counsel for Morgan is in error as to every statement of importance in the question.)

Ans. I have no knowledge of any such system, and see nothing about the book to enable me to swear to its ownership.

Int. 47. What do you consider the personal right to use an automatic reel, such as is the subject of this controversy, to be worth in the hands of a person of Mr. Daniels's circumstances?

186 Ans. I have no definite opinion.

(The deposition is objected to wholly, and cross-examination is waived.)

C. F. WASHBURN.

DISTRICT OF MASSACHUSETTS, *ss:*

Subscribed and sworn to, this tenth day of June, A. D. 1887, before me—

J. HENRY HILL,
United States Commissioner.

In the United States Patent Office.

DANIELS
v.
MORGAN.

Interferences. Wire-rod coiling apparatus.

EXHIBIT STOVER AGREEMENT. E. L. White, Notary Public, D. C.

Memorandum of agreement entered into between Washburn & Moen Manufacturing Company of Worcester, Massachusetts, and Daniel C. Stover, of Freeport, Illinois.

In consideration of an assignment by said Daniel C. Stover to said Washburn & Moen Manufacturing Company, dated Oct. 28, 1878, of a one-half interest in a new and useful invention or improvement in automatic wire-rod coiling apparatus, said company is to pay to said Stover the sum of ten (10) cents per ton, of 2,240 pounds, on all wire rods rolled by said company, using or employing said invention or improvement, or any part or parts thereof.

Said Washburn & Moen Manufacturing Company are to be to the expense of procuring any and all patent or patents for said invention in the United States and foreign countries.

Said Washburn & Moen Manufacturing Company agree that in case they shall license any person, persons, party or parties to use said invention, or any part or parts thereof, they shall pay to said Stover, or his legal representatives, one-half of such royalties
187 received from such person, persons, party or parties so licensed, or in case of sale outright of said invention, or any part or parts thereof, then said company agree to pay to said Stover one-half of such sum received from such sale.

Royalties to be paid quarterly, commencing Jan. 31st, 1879, and are to be paid as follows. That is, royalties in the United States:

Royalties due January 1st, 1879, to be paid January 31st, 1879.

Royalties due April 1st, 1879, to be paid April 30th, 1879.

Royalties due July 1st, 1879, to be paid July 31st, 1879.

Royalties due October 1st, 1879, to be paid October 31st, 1879.

And all subsequent payments to be made in like manner, once in three months.

It is further agreed that in case said Washburn & Moen Manufacturing Company, its successors or assigns, shall be to any expense in litigating said invention or improvement, such expense shall be borne equally, that is, one-half shall be paid by said company and one-half shall be paid by said Daniel C. Stover; said company, however, agree to furnish the money for such litigation or litigations, and said Stover's part to be deducted from royalties due him by said company, but said company are not to withhold any royalties due said Stover, other than enough to settle his, Stover's,

portion of the cost of litigations, at the time said royalties are due and payable, viz., from and after the 31st of January, A. D. 1879.

WASHBURN & MOEN MFG. CO.,
Per CHAS. H. MORGAN, *Gen'l Sup't.*
DANIEL C. STOVER.

WORCESTER, MASS., *October 28th*, 1878.

A true copy of the paper produced and identified by the witness, Daniel C. Stover, in his answer to Int. 19.

[SEAL.] E. L. WHITE,
Notary Public, District of Columbia.

188 EXHIBIT CHARLES H. MORGAN NO. 1.

Memorandum of agreement made and entered into this seventh day of September, in the year 1885, by and between Washburn & Moen Manufacturing Company, a corporation duly established by law, at Worcester, in the county of Worcester and State of Massachusetts, party of the first part, and Charles Hill Morgan, of said Worcester, party of the second part:—

Witnesseth, that whereas the said Charles Hill Morgan has for some years held the position of general superintendent in the works of said company in Worcester, and said parties are desirous of making an arrangement for the future employment of said Morgan in said capacity: In consideration thereof, it is hereby mutually agreed between the parties as follows:

The said company shall forever have the right, without further compensation, to use any and all inventions and improvements in methods or machinery used or susceptible of use in the business carried on by them, which said Morgan has heretofore made; and also all the inventions and improvements in methods or machinery used or susceptible of use, which said Morgan shall hereafter, while in the employment of said company, make or invent.

In case the said Morgan has or shall take out letters patent for any such inventions or improvements, said company shall have a license for its own use of the same, free of any charge during the existence of said patents. If the said Morgan shall take out any letters patent for any inventions or improvements, this company shall have a right to purchase and have assigned to them any such patented improvements by paying to said Morgan therefor such a sum as shall be determined to be their fair value, subject to the aforesaid rights of the said company to use the same, by three disinterested persons, one of which shall be chosen by the directors of the said company, one by said Morgan, and the third by the two so chosen by the parties; and the said Morgan agrees, upon the payment of the sum fixed as the value of the invention and improvements subject to the said rights, that he will assign and transfer to Washburn

189 & Moen Mfg. Co. said inventions and improvements and the patents issued as to the same. This right of purchase by said company to extend only for one month after the receipt of notice by said company of the decision of said arbitrators, and if

the said company does not, within said time, make said purchase, the said Morgan shall be at full liberty to sell and assign said patents to any other parties subject to the right of use aforesaid by Washburn & Moen Mfg. Co. It being understood that said Morgan shall give his undivided attention to secure to this company the largest production of its manufactures at the lowest possible cost; and subject to the instructions of the board of directors, the manufacturing in all the corporation works will be placed under the exclusive charge of said Morgan.

Upon the execution, by the parties, of this agreement the obligations and agreement contained in the contract between the parties, bearing date July 19, 1871, and the addition thereto, bearing date Sept. 27, 1872, shall be considered cancelled, and that this agreement is a substitute therefor.

(Signed) CHAS. H. MORGAN. [SEAL.]
(Signed) WASHBURN & MOEN MFG. CO.,
[CO.'S SEAL.] By P. L. MOEN, *President.*

EXHIBIT CHARLES H. MORGAN No. 2. E. L. White, Notary Public, D. C.

Hon. Commissioner of Patents.

SIR: In regard to my application for improvements in wire-rod rolling mills, filed April 29, 1885 (Nos. 163,877 and 163,878), in interference with E. S. Lenox, a decision was rendered by the examiner-in-chief, Feb. 26, 1887, awarding priority to Lenox, and I am informed that unless I take an appeal to you before March 28, 1887, that decision will stand as the decision of your office.

Inasmuch as, for reasons I will herein state, I am constrained to let the case go without appeal, I deem it proper to call your attention to certain matters in connection with those cases, and beg that you will take official notice thereof.

My said applications were filed with the knowledge of the
190 directors of the Washburn & Moen Manufacturing Company, of Worcester, Mass., of which I am general superintendent, and mainly for their benefit; they having the free and unlimited use of all of my inventions, and while, I myself, in my present position can make no use of them.

When interferences were declared with the applications of Lenox (who is an employee of said company) I discussed the situation freely with Mr. Washburn, the vice-president, and others, supposing that they were interested in my obtaining a judgment. I had previously, in an official capacity, investigated the scheme of Lenox, and my report thereon is in evidence in these cases. I was therefore confident that I was the true inventor of any patentable matters that might by any possibility conflict with Lenox; and I was encouraged to proceed with the contest and vindicate my rights, in the belief that the expenses would be met by the Washburn & Moen Manufacturing Company, for whose interest I supposed I was contending.

During the taking of testimony on my behalf in Washington, I began to suspect that the Washburn & Moen Manufacturing Company had not only purchased Lenox's inventions (which I had at one time advised, provided that they were found patentable), but were supplying him with means and facilities for contesting my claim to my own independent inventions. This suspicion I soon found to be correct. At the same time the animus of Lenox and those who were supporting him was displayed in the cross-examination to which their counsel subjected me. Upon my return to Worcester, I was seriously discomposed at finding myself in antagonism with the company, and at the ill feeling manifested toward me. At this time considerable pressure was brought to bear upon me by the directors to give up attempting to establish my rights, which pressure I was in no condition of mind, owing to the above occurrences and to physical prostration produced by overwork and mental anxiety, to resist. Consequently I consented to put an end to this condition of things, even though it involved a sacrifice of my own interests, and accordingly made an agreement with the company not to contest the cases further. This I supposed ended the matter, and all unpleasantness connected therewith. The under-
191 standing was reached just before the arrival of my counsel, to attend taking of testimony by Lenox, of which notice had been given him. I explained to him what happened, and after appearing at the place of examination, and finding no one present, he left Worcester.

Having thus contrived to tie my hands with an agreement which I made in good faith, testimony was taken by Lenox at another date, when, of course, I was neither present nor represented by counsel. This testimony I never read until a few days ago, and I find that it contains many statements most unjustly reflecting upon me; putting myself and my actions in a false light, perverting the issue of the interference, and misleading the Patent Office by conveying a wrong impression as to the matter in controversy; which statements I have had no opportunity to rebut or explain.

During the time this testimony was taken, and until some time later, my counsel was out of the country, and I neither saw nor heard from him. Immediately upon his return, on Oct. 6, he wrote me a long report setting forth the condition of this case, informing me that, if any further contest were intended it would be necessary to take an immediate appeal to the board. Not having sufficient time to consider properly the position of the cases, I directed that the appeal be taken, in order to gain time for that purpose.

My counsel, I understand, did not contest this appeal, but gave notice in writing that he would consent to a decision *pro forma* in favor of Lenox. After holding the case for a long time under advisement, I find that a decision was rendered on the evidence, the board saying that they did not render *pro forma* decisions. I understand that my counsel received no notice that his request for a *pro forma* decision was to be denied, or that argument would be heard, until receipt of the decision aforesaid.

The limit of appeal from this decision has nearly expired, and I have concluded not to appeal therefrom, for the reason that even if I prevailed, the Washburn & Moen Manufacturing Company would obtain the benefits, and being now involved in another interference I cannot afford to incur further expense in the matter. Moreover, although the invention in controversy once promised to be of utility, in the light of the tests that have been made, it is most apparent that it is of no practical value.

192 Nevertheless, I believe this controversy has been carried on against me in such a manner as both to do me injury and to defeat the ends of justice; and I protest that you ought not to issue a patent to Lenox as the result of an interference wherein through unfair means it was contrived to suppress and distort the truth, and wherein the testimony is on its face inconclusive as to the real facts.

I leave it to you to decide whether, under the circumstances I have stated, you ought to issue such patent, and in any event I beg leave to enter upon the record my most respectful protest against such proceedings.

Very respectfully, ——— ———.

EXHIBIT CHARLES H. MORGAN No. 3. E. L. White, Notary Public, D. C.

WORCESTER, MASS., *June* 3, 1886.

Chas. H. Morgan, Esq., general superintendent.

DEAR SIR: Referring to your request that I report upon what had been done toward trying No. 5 mill and reel; also my opinion of its practicability.

The engines, mill and reels were completed ready for a trial about three weeks ago. Some difficulty was experienced in driving the intermediate hot reel, also in obtaining sufficient heat to keep the automatically coiled rod up to the proper temperature for re-reeling. In fact, we could not heat the reel up to a red heat. Changes were made in the driving mechanism and heating arrangements. While these changes were being brought about we tried the rolling mill, cutting off four-foot pieces of the No. 6 rods, as they were delivered from the finishing rolls of the No. 1 rolling mill, and introducing them into No. 5 mill, as quickly as possible, in order that they should not lose their heat. We found no difference in rolling these short pieces down to No. 10 size.

We then set up a temporary furnace, and heated five-foot pieces of No. 6 rods, rolling these to No. 10 without difficulty.

193 The intermediate hot reel was fired the second time, and by means of a blast introduced under the grate we succeeded in heating the reel up to a good red heat.

Several rods were coiled into the reel, but in no case were we able to maintain the heat of the coil uniformly, as only those portions of the coil which were in direct contact with the red-hot reel retained their heat. It was impossible to reroll any of the coils, owing to this difficulty.

The use of the intermediate hot reel was then abandoned, and we tried to roll No. 10 wire directly from the No. 6 rod as finished in the present No. 1 mill. An operator seized the first end with a pair of tongs as it issued from the finishing rolls, and introduced it as quickly as possible into the No. 5 mill. We then found that the engines were not powerful enough to roll a long piece of No. 6 wire down to No. 10. A number of trials were made in this direction, but proved failures, owing to lack of power.

We then tried two pairs of rolls instead of four, and found that the engines had just power enough to run these two, making a section equal to a No. 8 rod.

To recapitulate, I should say:

First. That the intermediate automatic reel as now constructed is a total failure.

Second. I think it possible to build an intermediate automatic reel that would work successfully, but with what economy remains to be ascertained.

Third. The power of the engines should be increased three times, making two hundred and fifty horse power, to drive six pair of rolls.

Fourth. The construction of the rolling mill is very superior, with the exception of the overhanging reels, which do not seem to have worked satisfactory so far.

Fifth. The automatic reel for coiling the finished No. 10 rod worked excellent, and can suggest no improvement.

Sixth. I would suggest as a valuable experiment, that we supply enough power to run six rolls of No. 5 mill, and direct or introduce a No. 4 rod as it is finished from the No. 1 mill, and roll to No. 10 without any intermediate heating.

194 EXHIBIT MORGAN LETTERS 1, 2, 3, AND 4. E. L. White, Notary Public, D. C.

(No. 1)

WORCESTER, MASS., *Sept.* 17, 1886.

Anthony Pollok, Esq.

DEAR SIR: Your favor of the 16th received, informing me that my application for an automatic reel, with a vertically moving platform, had been put in interference with an application of F. H. Daniels. Said Daniels is one of my assistants, as you surmised, and was a draughtsman under my direction at the time I invented the said reel, and made drawings from sketches furnished by me, from which a pair of reels were constructed. The same were tested in the latter part of 1879, in what we call the No. 2 rod mill.

I have not had time to look up dates on drawings since receiving your letter, but will do so tomorrow, and will write again.

Last spring I wrote to Gustav Jansson, a Swede, who was an expert rolling-mill man, who worked in the mill, and saw the reel tested, asking him to write me, and make a sketch showing what the reel was like. Enclosed you will find the sketch he sent me,

from which you will see he remembered the essential features of the invention. Many others can testify in regard to seeing the invention tested. This, of course, is no proof of who made the invention, but is merely a little that occurs to me on first thought this evening. (I will try to tell you all I know about this case.) The Swede, Jansson, before referred to, left the employ of our company in March, 1880, and went to Sweden, where he has since remained. Some of the important parts of these trial reels are still in the mill where they were tested. The present foreman of the mill remembers the trial, and others at work in the mill.

In regard to Daniels (his parents were friends of mine). When about twenty years of age he graduated from Worcester Free Institute (of which I have been a trustee from the start), and shortly after I took him into my office, and employed him (at my house) also as a (private) draughtsman. In the summer of 1887 I took him, with a part of my family, to Sweden, among my friends,
195 and paid a large part of his expenses. I have for these long years befriended him, and now he proves treacherous. But this is not the first offence. I have lately become satisfied that Daniels has been to work for Lenox a long time, and I believe that he is under pay from Lenox, but I cannot prove it. Daniels made an agreement about two years ago with our company for a term of five years for a stipulated salary, during which time he was to assign all inventions he might make to our company. I think he has been dissatisfied with his bargain ever since. Very soon after this bargain was made he became very intimate with Lenox, visiting back and forth, and riding together. You will doubtless find that he has assigned his invention, or will do so, if patent should issue, and that W. & M. Mfg Co. pay the bills; in other words, that Washburn has stirred him up to make the application. I think it will be difficult to prove that he made the invention.

I will go to work on this case, and will write again soon.

Very respectfully yours, CHAS. H. MORGAN.

(No. 2.)

WORCESTER, *Sept.* 20, 1886.

Anthony Pollok, Esq.

DEAR SIR: I write you a line this morning to say that on Saturday I looked over drawing connected with history of our rod-reeling experience, and put a draughtsman at work making tracings, so that I can furnish you with blue prints of important ones tomorrow. Two of the draughtsmen who worked for me at that time,—*i. e.*, 1878 and 1879,—are away, one in Sweden and one in N. Y. city. This last I have written to, but have little hope that I can get help from him. I am confident the enemy cannot get help from him (*i. e.*, Hemenway), although it may be safer to see him, and get him committed. I can judge better when I hear from him.

I have one very intelligent, loyal witness, who made drawings and models of reels in 1878 and 1879, Mr. George H. Scott. I have seen him and gone over drawings; he will look over memoranda.

Said Scott made drawings for reel patented by me Oct. 7, 1879, No. 220,300. I think when you examine this patent and a drawing made by Scott, July 3, 1878, you will see that I had the hollow shaft, a hydraulic lifting device to remove rod from reel, and that little remained to be invented.

196

Respectfully yours, CHAS. H. MORGAN.

P. S. I am suffering from a severe cold and sore throat, and am pretty thoroughly tired out. I hope it will not be necessary for me to leave home this week.

Yours, C. H. M.

(No. 3.)

WORCESTER, MASS., *Sept.* 22, 1886, p. m.

A. Pollok, Esq.

DEAR SIR: Yours of 20th received. In reply have to say that at present I do not know of any direct proof I can produce to establish my claim to be the first original inventor of the reel, as at that time I had implicit confidence and told my plans without reserve. He was familiar with what I had done, the drawings and sketches were in the office and accessible to him, such as shown in patents Nos. 220,300, 224,787 and 224,941.

You will see by the blue print marked "A," and dated July 3, 1878, that I had then an upright reel with a double row of arms or prongs.

You ask "if Daniels can bring any evidence to show the invention was his?" I do not know of any. You ask, "Is there anything to connect him with the invention?" Yes, as I wrote you the 17th, he made the working drawing in accord with my instruction. The enclosed blue print, dated Oct. 9, 1879, was made by him. I do not think at that time either officers or men had any doubt that I invented the reel; the fact that Daniels worked under my directions exclusively can easily be proved, and he will not deny it.

You ask, "What were the results of test in 1879?" The operation of reeling was successful; the operation of removing the coil from the reel was not, for the reason that when water pressure was let into the cylinders A and B, raising the platform and coil above the arms before the reel came to rest, the shafts being spliced together, the effect was when the reel and platform came suddenly to rest, the centrifugal force distorted the coil (there being no support) so as to make it dangerous to be near the reel. The reel should have been brought to rest before the platform was elevated, and this result I expected, but was mistaken. Now, to answer your question why this reel was abandoned prior to 1878; all our wire had to be put through the annealing process between the rod and No. 12 size. Early in 1878 my son and Kenerson invented a coating which enabled us to draw from the rod to No. 12 without annealing. On account of this, the demand for small rods was not so pressing in 1878 and 1879 as it had been, and we did not feel willing to spend the money to build a couple of new reels to further test the invention. Early in 1885 the demand for small rods be-

197

came urgent, and I went to work again at the problem (as you know). As soon as I could get time after my vacation, which ended Sept. 1, 1885, I took up the question of the old reel now in dispute, and in November, or early in December, put a draughtsman at work on drawings. These were so far completed that I was ready to commence construction in January, 1886. The reels were completed and a test made in the No. 2 rod March 10, 1886, which was successful, and its success incited Daniels to apply for a patent. Shortly after this, I wrote to Jansson, in Sweden; I cannot tell the date. I was at a loss to know whether or not the Patent Office would not consider this an abandoned invention, and advised with you, after which the application was made.

In case some one not knowing of these trials had made an application for a patent, I should expect the patent law would cut me off on the ground of abandonment; but in this case I should suppose the same law would cut off Daniels, especially if he has made his application since December last.

I do not believe he has anything present except his personal statement. I can prove that I had all the elements of this invention one year or more before he did any work on reel drawings.

Very truly, yours, CHAS. H. MORGAN.

198 (No. 4.)

WORCESTER, *Sept.* 23, 1886, a. m.

A. Pollok, Esq.

DEAR SIR: We are having a dark rain-storm, and I fear I cannot mail the blue prints today.

This is the third day I have been confined to my house (my doctor says the trouble is overwork), but I think I will be about my business in a day or two. I just name this, as my answers to your questions may not be as clear as you wish.

Yours, truly, CHAS. H. MORGAN.

EXHIBIT CHARLES H. MORGAN No. 6. E. L. White, Notary Public, D. C.

Memorandum.

OFFICE OF GENERAL SUPERINTENDENT,
WASHBURN & MOEN MANUF. CO.
WORCESTER, MASS., *Feb.* 2, 1880.

(Order No. 26.)

To Mr. H. Young:

Please see Fred. Daniels about alteration in automatic rod reel.

C. H. M.

EXHIBIT MOEN.

WASHBURN & MOEN MANUF. CO.,
WORCESTER, MASS., *Nov.* 1, 1886.

Mr. Chas. H. Morgan, general superintendent.

DEAR SIR: In the case of interference between you and Mr. Daniels, Mr. Daniels, finding it would be necessary for him to have

some additional time in order to make such a statement of his case as his interests seems to demand, authorized his attorney to apply for an extension of time. The answer comes back that Mr. Pollok refuses to sign any such paper allowing such extension.

Under the arrangement made with Mr. Daniels by the board of directors, of which you are one, and which arrangement was
199 made under your affirmative vote, the inventions of Mr. Daniels belong to this company, and Mr. Pollok being under your instructions, we cannot suppose for a moment that you are authorizing this direct and gratuitous opposition to the interests of this company, and to the policy of the company which you yourself have indorsed.

In order that there may be no mistake with reference to your position, and especially that our interests may be subserved in the granting additional time as above, we hereby request that you immediately instruct Mr. Pollok to give such increased time, or state to the board at once what your position is, if other than in compliance with this request.

Awaiting your prompt response,

Yours truly, WASHBURN & MOEN MFG. CO.
P. L. MOEN, *President.*

EXHIBIT WASHBURN 1. J. Henry Hill, United States Commissioner.

(Copy.)

AUGUST, 1885.

C. F. Washburn, Esq.:

By adopting the following proposition, I am quite sure the company can have small rods quicker than by any other way. My proposition would be to add two more housings and an automatic reel to No. 2 continuous mill; by so doing we can roll a No. 8 x 9 rod and not decrease the production.

Yours resp't', F. H. DANIELS.

EXHIBIT DANIELS CONTRACT. J. Henry Hill, United States Commissioner.

Memorandum of an agreement made this seventeenth day of June, A. D. 1885, between the Washburn & Moen Manufacturing Company and Fred. H. Daniels.

Whereas the said Daniels is now in the employment of said company at their works in Worcester, and it is expected that he will continue to be so employed by them in the future. In con-
200 sideration thereof, and for other valuable considerations, it is hereby mutually agreed between said parties as follows:

The said company shall have the sole, exclusive, and perpetual right and authority, without the payment of further compensation, to use any and all inventions, improvements in methods or machinery used or susceptible of use by said company in the business carried on by them, which the said Daniels shall make or invent while he shall continue in the employment of said company.

In case the said Daniels shall take out letters patent for any of such inventions and improvements, the said company shall have and enjoy free, exclusive, and perpetual license and authority to use the same, and shall also have the right, while said employment continues and until the expiration of four months after said Daniels shall leave said employment, to purchase and have assigned to them any of such patented improvements and inventions, and all rights acquired by the said Daniels under such letters patent, by paying him therefore a price to be determined by three disinterested persons, one of whom shall be chosen by the directors of said company, one by the said Daniels, and the third by the two so chosen by the parties.

It is hereby further agreed that in case the said Fred. H. Daniels shall, for any cause whatever, leave the employment of the said company, he shall have the personal right to use any invention which shall be patented by him and assigned to said company, according to the terms of the within agreement; and in case of the decease of the said Daniels during the term of this agreement, his heirs shall have the right to use the said inventions in one mill.

The said Daniels agrees to continue in the employment of this company for the term of five years from January 1st, 1885, and the said Washburn & Moen Manufacturing Company agree to employ the said Daniels for said term of five years from that date * * *

In witness whereof, the said parties have hereunto set their names the day and year first above written.

WASHBURN & MOEN MFG. CO.,
[SEAL.] By P. L. MOEN, *President.*
FRED. H. DANIELS.

201 UNITED STATES OF AMERICA:

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

The United States of America to Nere A. Elfwing, U. S. consul, Stockholm, Sweden, Greeting:

Know ye, that in accordance with the provisions of section 4905 of the Revised Statutes, I have appointed you commissioner, and by these presents do give you full power and authority diligently to examine upon their corporal oaths or affirmations, before you to be taken, Carl Angstrom, of Domnarvet, Sweden, in the matter of an interference now pending in the United States Patent Office between Fred. H. Daniels and Charles H. Morgan, on the interrogatories and cross-interrogatories hereto annexed, and I do hereby require you to reduce the same to writing and to close it up under your name and seal and to return the same to the Commissioner of Patents at Washington, District of Columbia, with all convenient speed.

[SEAL.] In testimony whereof, I have caused the seal of the Patent Office to be hereunto affixed.

Witness the Hon. Benton J. Hall, Commissioner of Patents, this thirteenth day of July, 1887. By WALTER JOHNSON,
Examiner of Interferences.

In the U. S. Patent Office.

DANIELS
v.
MORGAN.

Interference.

Deposition of Carl Angstrom.

Direct interrogatories to be propounded to Carl Angstrom, of Domnarfvet, Sweden, by the U. S. consul at Stockholm, Sweden, under a commission to be issued in the above-entitled cause.

Int. 1. State your name, age, residence, and occupation.

Int. 2. What was your occupation in 1878 and 1879? If employed during that time at the works of the Washburn & Moen Manufacturing Company, at Worcester, Mass., state when
202 and how long, and in what capacity you were employed; who employed you, and under whose directions did you work.

Int. 3. Describe your duties and the general routine of the draughtsmen's room.

Int. 4. Were you acquainted with Fred. H. Daniels? and if so, describe the relations that subsisted between him and yourself.

Int. 5. Was he in the habit of communicating inventions or ideas to you and discussing them; and if so, was it your practice to criticise them and make counter-suggestions?

Int. 6. Do you remember a visit of one Daniel C. Stover to the works of the Washburn & Moen Manufacturing Company in the year 1878? and if so, state, if you know, what was his business.

Int. 7. Do you remember a reel designed by said Stover? and if so, describe its construction and operation.

Int. 8. Look at the blue-print copy of drawing hereto annexed, and state whether you made the original thereof; and state also whose initials are thereon, and by whom, and when they, and the date appearing thereon, were written.

Int. 9. Describe the construction and operation of the device represented in the drawing, and state fully the circumstances under which you made said drawing (if you did make it), and what suggested the device to you.

Int. 10. Do you remember the construction and tests of automatic reels at the works of the Washburn & Moen Manufacturing Company, in the latter part of the year 1879? and if so, describe the reels, and state when you first heard of an automatic reel on a vertical shaft having a lifting platform for elevating the coiled rod above the spokes of the reel; give the circumstances fully; state where it occurred, and who, if any one, was present.

Int. 11. Did you ever have any conversations with Fred. H. Daniels regarding such a reel? and if so, state when such conversations took place, and what was said, and give any fact that enables you to fix the time.

Int. 12. Said Daniels has testified in this case that he discussed such reel with you on or about Nov. 5, 1878. Is that statement correct? In answering, whether yes or no, give your reasons.

203 Int. 13. Did said Daniels ever claim to you, or in your presence, to be the inventor of the vertical reel with lifting platform, as described in the Int. 10?

Int. 14. What was your belief or understanding at the time as to who was the inventor of such reel? And state upon what your belief or understanding was founded.

Int. 15. During the time you were at the works of the Washburn & Moen Company, was there any office book kept for the purpose of receiving sketches, etc.? And if so, describe such book, and state by whose instructions it was kept, and under whose direction and instructions such sketches and entries were made therein.

Int. 16. If you have had any correspondence with said Daniels, or any one else, on his behalf or on behalf of the Washburn & Moen Manufacturing Company, in relation to the subject-matter of this interference, please produce such letters and copies of your replies.

Int. 17. If you have had any conversations with any person on behalf of said Daniels or of the Washburn & Moen Company, please state fully what was said.

The consul is requested to mark the drawing, for identification, "Exhibit Angstrom Drawing," and at the close of all the interrogatories, direct and cross, to put the following:

"Do you know any other matter or thing in relation to the matter in controversy? If so, state it fully."

WASHINGTON, *June* 18, 1887.

Chas. H. Burleigh, Esq.

DEAR SIR: I hand you herewith a copy of the interrogatories to be propounded to Carl Angstrom in the interference of Daniels *v.* Morgan.

Yours truly,

A. POLLOK,
Attorney for Morgan.

Copy of the foregoing interrogatories received, this twenty-third day of June, A. D. 1887.

CHAS. H. BURLEIGH.
Attorney for Daniels.

204 In the United States Patent Office.

DANIELS
v.
MORGAN.

Interference.

Cross-interrogatories to be propounded to Carl Angstrom, of Domnarvet, Sweden, by the United States consul at Stockholm, Sweden, under a commission to be issued in the above-entitled cause.

Cross-int. 1. How long had you been in this country when you first entered the employ of the Washburn & Moen Manufacturing Company? Where had you been employed before that in this country, and in what capacity, and for how long?

Cross-int. 2. Have you ever seen the hot-rolled rod pass directly from a pair of rolls through a guide-pipe into a reel without going on a floor? If so, when and where, and to what extent?

Cross-int. 3. Was this plan of reeling or coiling hot-rolled rods,—that is, by causing them to pass directly from the last pair of rolls through a guide-pipe into a revolving reel or receptacle,—ever used practically, to your knowledge? If so, when and where? State fully.

Cross-int. 4. What do you recollect as to trials, during the years 1878, 1879 and 1880, of reels into which the wire passed from the last pair of rolls directly through a guide-pipe; that is, without going upon a floor? How many such trials were made, according to your recollection, and when and where was each one made, as near as you can recollect? Describe each trial clearly, in the order of date.

Cross-int. 5. If in your last answer you described any trial at the works of the Washburn & Moen Manufacturing Company, but cannot give the exact date, state the date as near as you can of each of such trials, and state how you get at each of such dates.

Cross-int. 6. If you have not already done so, state the extent of the use of each of the reels spoken of by you in each of the preceding answers, and in what building or with what rolling mill each was used, according to your best recollection.

205 Cross-int. 7. Explain, if you have not already done so, any details, which you may recollect as to each of the reels already spoken of by you; that is, state how each of the reels was mounted; how revolved; how stopped; how the coil was discharged or removed from the reel; how the reel proper was made; how the coils taken from the reel were deposited; how the coils were carried from the reel to the place of deposit; and any other details as to the construction of each of the reels which you may recollect; and state also as to which of the details above mentioned your recollection is indistinct.

Cross-int. 8. How was the wire rod reeled at the works of the Washburn & Moen Manufacturing Company during the years 1878,

1879 and 1880, otherwise than you have already described, if it was done in any other way?

Cross-int. 9. When did you first hear of, or hear any suggestion concerning, a reel into which the wire passed directly from the last pair of rolls through a guide-pipe without going on the floor, and how do you fix the date?

Cross-int. 10. Look at the Prosser patent drawing hereto annexed, and state how the device represented in that drawing differs in substance, if at all, from the blue-print copy of the drawing referred to in Ints. 8 and 9 propounded to you.

Cross-int. 11. How many books of the kind referred to in Int. 15 were at the works of the Washburn & Moen Manufacturing Company while you were employed there, as near as you can now recollect?

Cross-int 12. If you had any correspondence with Charles H. Morgan, or any one else on his behalf or on behalf of any representative of said Mr. Morgan, in relation to automatic reels, please produce such letters, and copies of your replies.

Cross-int. 13. If you have had any conversation or conversations with any person on behalf of said Morgan, or in relation to any matter in which said Morgan is interested, please fully relate what was said.

Cross-int. 14. Did you produce, in answer to Int. 16, a copy of a letter from you to F. H. Daniels, dated March 23, 1887, in which the following occurs: "Regarding the tub reel, I am sorry
206 not being able to assist you. I have looked through my notes from the period you mentioned in your letter, but I am not able to find anything of importance relating to the subject. I remember quite distinctly that we have had many talks on the subject, but I am not now able to fix the time or date. The question being of minor importance to me at that time, I suppose I must have forgotten to write down anything relating to it or else my notes have been mislaid in some way or other"? If you have not produced that letter, please do so; or if you cannot, please explain why.

Cross-int. 15. Please explain what you understand by the expression "tub reel."

Before me, Nere A. Elfwing, U. S. consul at Stockholm, commissioner, appointed by the U. S. Patent Office, in the matter of interference between Fred. H. Daniels and Charles H. Morgan, appeared at the U. S. consulate at Stockholm, at nine o'clock in the morning, on the thirtieth day of November, 1887, CARL ANGSTROM, who having been duly sworn, made the following answers to interrogations propounded in behalf of Charles H. Morgan:

To the 1st Int. My name is Carl Angstrom; age, thirty-one years; occupation, mechanical engineer; and residing at Domnarvet, in Sweden.

To the 2d Int. I was draughtsman at the works of the Washburn & Moen Manufacturing Company. I came to Worcester in July, 1878, and was engaged as draughtsman by Mr. Morgan for the

Washburn & Moen Manufacturing Company. Mr. Daniels was at that time head draughtsman and Mr. Morgan's confidential assistant. Afterwards, at the death of Mr. McNiel, Mr. Daniels became his successor as builder at the works. I got Mr. Daniels's former position as head draughtsman, and held the position until March, 1884, when I returned to Sweden.

To the 3d Int. My duties consisted in working out and putting into practical shape ideas as suggested by Mr. Morgan. Sometimes I designed and worked out machines from my own ideas, but I was always under Mr. Morgan's direct jurisdiction, Mr. Morgan himself taking an active part in the work of the draughting office.

207 To the 4th Int. I used to know Mr. Daniels quite well, and always considered him as a friend of mine.

To the 5th Int. Yes; he was. We very often exchanged ideas on technical subjects, and criticised drawings and inventions.

To the 6th Int. Yes; I remember this visit. He had with him a small wooden model of a reel, said to be invented by him, and he wanted Mr. Morgan to take up the invention.

To the 7th Int. I do not remember the exact design, but I think the reel was on a horizontal shaft, and provided with a pushing-off plate, and also some special device for catching and holding the end of the wire on entering the reel.

To the 8th Int. I made the original of this drawing. The initials are mine, written by myself. The date, Nov. 5, 1878, was also written by me, and is the date when I finished the design.

To the 9th Int. The reel consists of a plate, having axial spokes near the circumference and fastened to an horizontal hollow shaft. Outside of this plate is another one, having holes for each spoke or pin in the former plate. The outside plate is guided on the end of the hollow shaft and fastened to a tube or rod passing through this shaft. The tube or rod is keyed to a sleeve movable on the same shaft. By sliding this sleeve in or out, the loose plate will move to or from the plate fastened to the hollow shaft. The loose sliding plate is bent over at the circumference towards the spoke plate. The idea was to grip the end of the wire while entering between these two plates. Previous to or about the time I designed this reel, Mr. Morgan, with the assistance of Mr. Daniels, was trying to invent a good reel; the chief difficulty at that time being a good device for gripping the end of the wire on entering the reel. Having seen their work led me to design the above-described reel. I made the drawing at my boarding place. The next morning, at the office, I handed the drawing to Mr. Daniels, and he gave the drawing to Mr. Morgan. I think that Mr. H. Young was present or came up in the office during the time Mr. Morgan looked over the drawing.

To the 10th Int. I remember these tests, but I am not sure about the date. I do not remember the details of this particular reel, but I do remember that the reel had a vertical shaft. The test

208 took place in old continuous mill. Mr. Morgan and Mr. Daniels were present; also Mr. Young and myself part of the time.

To the 11th Int. I may have had several conversations on the subject, but these referred to the mechanical points and not to who made the invention. I do not distinctly remember more than one in 1880. Mr. Daniels was at that time making drawings for an experimental reel to be used in new continuous mill. About that time I went to Boston, and in looking up some English patents in the free public library I happened to come across one by R. Daelen, of Dusseldorf, on a tub reel. On getting back to Worcester I mentioned this to Mr. Daniels, and he admitted having seen the patent.

To the 12th Int. I do not remember any such discussion, and if it took place, I do not think that Mr. Daniels would at that time claim this invention as his own, being, just then, working on automatic reels for Mr. Morgan.

To the 13th Int. I do not think he did. Mr. Daniels was not then in the habit of claiming anything he was working on in connection with Mr. Morgan as his, Daniels's, exclusive invention.

To the 14th Int. My belief was, that Mr. Morgan invented the reel. Mr. Morgan put Mr. Daniels to work on the reel in question; besides, both gentlemen were so intimately connected that I do not think the question at that time ever was brought up as to whom of them invented this reel.

To the 15th Int. There were two such books. Size about 9×16, very thick, yellowish paper. The books bound in cheap binding, blue or green covering paper and light-colored leather back. Mr. Morgan told Mr. Daniels to order these books. They were made by Putnam & Davis. Mr. Daniels had charge of the books. Sometimes Mr. Morgan ordered sketches to be preserved in these books.

To the 16th Int. Please see Mr. Daniels about this.

To the 17th Int. Possibly I may have had; still I do not think it would be of sufficient importance to interest you.

I have marked the drawing annexed to this commission, and copied from a drawing made by Carl Angstrom, as "Exhibit A."

Thereupon I put the following question to the witness: Do you know any other matter or thing in relation to the matter in controversy? If so, state it fully. To which he answered, No.

209 Cross-interrogations propounded by me, to which CARL ANGSTROM answered as follows:

To the 1st cross-int. I came to the United States in July, 1876. I was first employed at the Centennial Exhibition in the Swedish department. I went to Pittsburg, Pa., in September, 1877, got employment as machinist at the Pittsburg locomotive and car works. In January, 1878, got a situation with Pennsylvania Railroad Company at the New York repair shops, at the Meadows, N. J. I went from there to the Washburn & Moen Manufacturing Company, in August, 1878.

To the 2d cross-int. Yes; at the Washburn & Moen Manufacturing Company's works on several different occasions, but not in regular working; only as trials or experiments.

To the 3d cross-int. Mr. R. Daelen, of Germany, did build a con-

tinuous mill having an automactic tub reel. The mill itself was a failure. Still, I think the reel was a good one.

To the 4th and 5th cross-ints. I remember three or perhaps four different trials of such reels, but I am not able to fix the date of any one of them. These trials were not prolonged. Each one lasted only a short time.

To the 6th cross-int. I think that the two last ones were conducted in the new continuous mill building, the rest in the old mill.

To the 7th cross-int. I remember the following details of the reels: First reel, mounted on vertical shaft, revolved by means of bevel gearing from a horizontal shaft underneath. Stopped by some kind of friction brake. I do not remember how the reel proper was made or how the coil was taken off the reel, but I think it was by means of a loose, rising plate. The coils were removed to place of storing by means of tongs hanging from an overhead rail. The next last experimental reel was of the tub-reel type. General arrangement very similar to first one. The reel was a plate drum, in which the wire ran direct from the mill. The coil was removed by means of a loose plate being pushed up by means of a rod running through the hollow reel shaft, this rod being connected to a hand lever or treadle. The last reel I remember was similar to the former one, but the lifting, stopping, and starting were accomplished by means of hydraulic cylinders instead of hand levers.

210 To the 8th cross-int. By means of a spoke reel on a horizontal shaft, the wire rod being bent round one of the spokes and the reel started. After the coil being wound up the reel was stopped, and the coil taken off by means of a pair of tongs.

To the 9th cross-int. About the time, or soon after, I came to the Washburn & Moen Manufacturing Company. I fix the date from the drawing made by me (see direct Int. 8), and dated Nov. 5, 1878.

To the 10th cross-int. It differs in four points from mine. In "Prosser" the pushing-off plate or stripper is stationary, not revolving, thereby causing frictional resistance between the wire and the plate. The means of gripping the wire between the spoke plate and stripper, as invented by me, is lacking in the Prosser patent.

To the 11th cross-int. Two, as far as I remember, about the same shape and size as described in answer to direct Int. 15.

To the 12th cross-int. Please see Mr. Morgan about this.

To the 13th cross-int. Possibly I may have had; still, I do not think it would be of sufficient importance to interest you.

To the 14th cross-int. I did give this reply to the letter from Mr. Daniels. In his letter to me he assumed himself to be the inventor of the reel in question. Now, not knowing or believing this to be the case, and not wanting to get mixed up in the case, I answered as I did. As to producing a copy of my letter, Mr. Daniels has the original, and can use that as he pleases.

To the 15th cross-int. A tub reel is a drum preferably revolving on a vertical shaft. The wire is led into this drum direct from the rolling mill. The rotation of the drum, in combination with the centrifugal force and stiffness of the wire, on being bent inside of

the drum, will cause the wire to be coiled up against the side of the drum, thereby forming a close ring or coil.

CARL ANGSTROM.

The undersigned, United States consul at Stockholm, commissioner appointed by the United States Patent Office in the matter of interference between Fred. H. Daniels and Charles H. Morgan, hereby certifies that Carl Angstrom, a witness, whose deposition is here annexed, appeared before me in person, and before making answers to said interrogatories was duly sworn to testify to
211 the truth, the whole truth, and nothing but the truth in cause of Fred. H. Daniels *v.* Charles H. Morgan, and afterwards made the written answers to the interrogatories as appears in said deposition; that the answers were written by said witness and copied into the deposition by me; that before signing the same, said witness read the same over; that neither party to the action *were* present in person or by attorney; that said answers were written at my office in Stockholm, on the thirtieth day of November, 1887, commencing at nine o'clock in the morning, and continuing until the same was finished; that I am not connected by blood or marriage with any of the parties to the action, and that I am not directly or indirectly interested in the matter in controversy.

[SEAL.] NERE A. ELFWING,
Commissioner.

Evidence for Complainant in Reply.

WORCESTER, MASS., *June* 11, 1887.

In the Matter of the Interference Between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN, for Mechanism for Coiling Wire Rods, now Pending before the Commissioner of Patents.

Anthony Pollok, Esq., attorney for Chas. H. Morgan.

SIR: You are hereby notified that on Monday, June 20, 1887, at ten o'clock in the forenoon, at the office of the Washburn & Moen Manufacturing Company, No. 94 Grove street, Worcester, Mass., before Henry Eveleth Hill, notary public, or other competent magistrate, I shall proceed to take the testimony of Fred. H. Daniels, Philip L. Moen, Charles F. Washburn, Francis H. Dewey, Philip W. Moen, Edwin S. Lenox, Edwin H. Hill, Horace A. Young, Dwight A. Davis, all of Worcester, Mass., and others, as witnesses on behalf of said Fred. H. Daniels.

The examination will continue from day to day until completed. You are invited to attend and cross-examine.

Respectfully, FRED. H. DANIELS,
By his attorney, CHAS. H. BURLEIGH.

212 WASHINGTON, *June* 16, 1887.

The above notice cannot be accepted, for the reason that Morgan's time having been continued, by order of the Patent Office, to take

testimony abroad, the time for rebutting testimony by Daniels has not arrived, but will be fixed by an order to be issued upon return of the commission, in conformity with the official notice.

A. POLLOK,
Attorney for Morgan.

CITY OF WASHINGTON, }
District of Columbia, } ss:

Personally appeared before me, a notary public in and for the District of Columbia, this sixteenth day of June, 1887, Marvin A. Custis, and made oath that he placed the notice for taking testimony, of which the foregoing is a true copy, in the hands of A. Pollok, Esq., attorney for said Morgan, at about three o'clock p. m., this 16th June, 1887, and that the foregoing indorsement, signed by said Pollok, was made and signed by said Pollok at the time specified.

MARVIN A. CUSTIS.

[SEAL.] J. C. STODDARD,
Notary Public.

WORCESTER, MASS., *June* 16, 1887.

In the Matter of the Interference Between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN, for Mechanism for Coiling Wire Rods, now Pending before the Commissioner of Patents.

Charles H. Morgan, Esq., Worcester, Mass.

SIR: You are hereby notified that on Monday, June 20, 1887, at ten o'clock in the forenoon, at the office of the Washburn & Moen Manufacturing Company, No. 94 Grove street, Worcester, Mass., before Henry Eveleth Hill, notary public, or other competent magistrate, I shall proceed to take the testimony of Fred. H. Daniels, Philip L. Moen, Charles F. Washburn, Francis H. Dewey, Philip W. Moen, Edwin S. Lenox, Edwin H. Hill, Horace A. Young, Dwight A. Davis, all of Worcester, Mass., and others, as witnesses on behalf of said Fred. H. Daniels.

213 The examination will continue from day to day until completed.

You are invited to attend and cross-examine.

Respectfully, FRED. H. DANIELS,
By his attorney, CHAS. H. BURLEIGH.

COMMONWEALTH OF MASSACHUSETTS, }
City and County of Worcester, } ss:

Personally appeared before me, a notary public, Charles H. Burleigh, who being duly sworn, deposes and says that he served the above notice upon Charles H. Morgan at 8.45 a. m. of the seventeenth day of June, 1887, by leaving a copy at the residence of said Morgan, No. 28 Catherine street, in the city of Worcester, Mass., in charge of his daughter.

CHAS. H. BURLEIGH.

Sworn to and subscribed, at Worcester, in the county of Worcester and State of Massachusetts, this seventeenth day of June, 1887.
Before me—
[SEAL.] EDWARD F. BISCO,
Notary Public.

WORCESTER, *June* 20, 1887.

Before the honorable Commissioner of Patents. In the Matter of the Interference Between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN, for Mechanism for for Coiling Wire Rods, Now Pending Before the Commissioner of Patents.

Depositions of witnesses examined on behalf of Fred. H. Daniels, pursuant to the annexed notice, at the office of the Washburn & Moen Manufacturing Company, No. 94 Grove street, Worcester, Mass.

Present: Chas. H. Burleigh, attorney for Daniels.
Mr. Morgan was not present, nor was he represented by counsel.

JUNE 20, 10.15 a. m.

On motion of Mr. Burleigh, the attorney for Daniels, the hearing was adjourned to the same place at 10 a. m. Tuesday, June 31, 1887.

H. E. HILL,
Notary Public.

214 WORCESTER, *June* 21, 1887.

Pursuant to the terms of the above notice of adjournment, at the time and place therein set forth, the hearing was resumed.
Present: James E. Maynadier, counsel for Daniels; Anthony Pollok, counsel for Morgan.

Deposition of Philip L. Moen.

P. L. MOEN, having been sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded by Mr. Maynadier, deposes and says:

Int. 1. What is your name, and have you before testified in this case?

Ans. My name is Philip L. Moen. I have before testified in this case.

Int. 2. Please read Ints. 118, 119 and 120, and the answers, in the deposition of Charles H. Morgan now shown you, and state whether you know George A. Lambert, and what you know of him.

Ans. I do, and have known him for the past fifteen or sixteen years. He has in all these years shown himself to be a very intelligent, capable, faithful and devoted workman. He always gave satisfaction. It was never intimated to me by anybody that he was given to dissipation. I have had prepared the table showing the

number of days and hours he has worked, and during all these years the average that he has worked monthly has been twenty-six days. It was never intimated to me by the superintendent, or any one else, that we might be obliged to discharge him for inattention to his duties. I find by the record that many months he averaged twenty-eight days, and two years he averaged twenty-nine days, that was in 1879; in 1880 he averaged twenty-nine days and five hours, and so on. In 1870 he was in our employ from January to the end of the year, averaging twenty-eight and four-tenths days for the entire year. During the first eight months of 1871 he was not in our employ, but was hired away from us or made an engagement. I am not sure which, with a firm of Smith & Murdock. We thought it desirable to make a new engagement with him, as we found it impossible to find a satisfactory substitute for him during
215 these eight months. This re-engagement was made by our late superintendent, after conference with me, I believe.

(The table referred to is put in as evidence, and marked "Exhibit Lambert's Time.")

Cross-examination by Mr. POLLOK:

Cross-int. 3. You have sworn to deductions from a paper or table prepared by some clerk in your employ, have you not?

Ans. I have.

Cross-int. 4. You do not know whether or not the table contains an account of overwork, or extra work?

Ans. It must contain an account of some extra work, or overwork, where it exceeds twenty-five or twenty-six days in any given month.

Cross-int. 5. Do you not know, or were you not informed, that while a good and hard worker, Lambert's habits as a worker were quite irregular?

Ans. I do not know that his habits as a worker were irregular, and I was not informed, and do not believe that he was irregular as to his working in the regular hours of the mill.

Cross-int. 6. As you are not, as I suppose, an associate of Lambert, your knowledge in regard to his character and habits is necessarily hearsay, is it not?

Ans. My knowledge is not based upon hearsay.

Cross-int. 7. Then will you please explain?

Ans. In the discharge of my duty as president, I have always been in the habit of inspecting all the departments of these works. For the special reason this inspection was often made by me, because according to the by-laws of the directors of this corporation, it was incumbent upon me to see that the premises were not only well insured, but that I should know from personal examination whether the premises were kept in a safe and cleanly condition as to fire risks. By reason of this inspection, I many times in the year saw all the departments of the works, including that occupied by Lambert. In addition to this, of late years Lambert's room, so called, was located in what we call the machine-shop building. My habit

in going to and from the works, and from my house, caused
216 me to take the shortest route homeward and return, and this was through the basement of the above-mentioned machine shop, and so by reason of this I frequently met Lambert.

Cross-int. 8. Will you be kind enough to examine the sketch of a plan I have just presented, and state whether or not it is substantially correct?

Ans. It is substantially correct.

Cross-int. 9. Is the passage marked "*a b*" not the passage which you use in going from your shop to the house?

Ans. It is, except the plan is defective if it is intended to convey the idea of a partition on the right as you enter at *b*. There is no partition on the right as you enter at *b*, till you reach the gas and water pipe maker's room.

Cross-int. 10. And the quadrangle L, is it not the room you have designated as Lambert's room, and where Lambert does his work?

Ans. It is the room called the Lambert room. The letter L does designate the Lambert room, but his duties are not limited to this room. I have often seen him about the premises, and on the roofs repairing slated and other roofs, and setting up large sheet-iron pipes both at these works and at Quinsigamond works.

Cross-int. 11. Is the Lambert room not so partitioned off from the shop in which it is located as to prevent any person looking into it while standing in passage *a b*?

Ans. It is.

Cross-int. 12. Isn't it some eighty feet from said passage?

Ans. It is, I should judge.

Cross-int. 13. Has not Mr. Daniels frequently complained about Lambert's irregularities?

Ans. Not to me, nor, to my knowledge, to anybody else.

Cross-int. 14. Have there not been many intervals lasting for months, and several times from three to four months consecutively, that you were not at the shop at all?

Ans. There may have been a few such intervals.

PHILIP L. MOEN.

217 *Deposition of Fred. H. Daniels.*

FRED. H. DANIELS, having been duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded by Mr. Maynadier, deposes and says:

Int. 1. What is your name, and have you before testified in this case?

Ans. Fred. H. Daniels. I have.

Int. 2. Please look at patent No. 220,300, and state what talk, if any, you had with Mr. Charles H. Morgan in relation to automatic reel running on a vertical spindle, and receiving the hot wire rod directly from the finishing rolls; the coil being taken from such reel by means of a grapple of some sort, which grapple was sup-

ported by a car on an overhead track. State also when and where you first spoke of this matter to Mr. Morgan, and also what you had done regarding it before speaking to Mr. Morgan about it.

(Objected to by Mr. Pollok as not rebuttal.)

Ans. I had a talk with Mr. Morgan regarding two automatic reels revolvable on vertical shafts, and provided with facilities for receiving red-hot wire rods directly from the finishing rolls, and in that connection I described a grapple for seizing the coil of finished wire rod from the outside. This grapple, as described, was provided with a hydraulic cylinder for raising and lowering the grapple and finished coil of wire rod. The grapple and hydraulic cylinder were supported by a car mounted on a overhead track, and was designed to move on wheels back and forth on the track. I first spoke of this matter to Mr. Morgan on the twenty-ninth day of May, 1878, and previous to this date I made a sketch illustrating the above-described reeling apparatus.

(Answer objected to as irrelevant, immaterial, and not in rebuttal, and notice is given by counsel for Morgan that he will move to have the same stricken off, or that additional time be granted for surrebuttal.)

Int. 3. The first, second and third claims of Morgan's patent, No. 220,300, are based upon the mechanism for seizing the first end of the hot rod; the fourth claim, upon special means for driving and stopping the reel; and the fifth claim, upon a grapple having
218 expanding grappling arms. State whether any of these details of construction were described by you, or not, to Mr. Morgan.

(Same objection as above.)

Ans. In my sketch referred to in answer to Int. 2 I illustrated the cone-stopping device. With this exception, I do not recollect of describing to Mr. Morgan the particular matter claimed in his patent, No. 220,300.

(Same objection. Same notice.)

Int. 4. At that time, *i. e.*, in 1878, how was the hot rod cared for after it left the last pair of rolls, both in this country and in Europe, so far as you know or have any reason to believe?

(Same objection.)

Ans. The finished hot wire rod was delivered from the finishing rolls through a short guide-pipe to a reel mounted to turn upon a horizontal axis. This reel was composed of a face plate having a circular row of spokes or pins projecting at right angles or nearly so from the face plate. An attendant seized the first end of the wire rod as soon as it was delivered in front of the reel (which was located some forty or fifty feet away from the finishing rolls) and introduced the end between the spokes of the reel. The reel was then started and the wire rod was pulled by the reel and wrapped in coils around the spokes of the reel. In the meantime the overfeed

of hot wire rod was distributed in loops over a large iron floor which formed the space between the finishing rolls and the reel.

(Objected to as immaterial, irrelevant, and not in rebuttal.)

Int. 5. Describe how the wire was looped over the floor.

Ans. An attendant was stationed at the delivering end of the guide-pipe, and with a short wire rod in his hand distributed the wire rod in loops over the floor by applying pressure with the rod against the outpouring finished hot wire rod.

Int. 6. What was the speed, usually, of the hot wire rod as it came from the last pair of rolls?

Ans. From twenty-five to thirty feet per second.

Int. 6½. About what was the area of the floor?

Ans. Forty or fifty feet long by about forty feet wide.

Int. 7. Where was the floor system in use in 1878, so far as you know or have reason to believe?

219 Ans. In all the wire-rod rolling mills in operation at that time.

Int. 8. How long did this floor process remain in use, and what took its place?

Ans. Until the spring of 1879; at this time two reels were tested experimentally at the works of the Washburn & Moen Manufacturing Company in Worcester. These reels were mounted to turn on vertical shafts, and were located within about eight feet of the finishing rolls of the wire-rod rolling mill. By means of three guide-pipes the finished wire rod could be delivered by means of a switch to either of the reels, in which case the operation of coiling was automatic, or self-acting, and the reels were speeded to receive the wire rod as rapidly as delivered from the finishing rolls of the rolling mill without any overfeed or slack wire rod between the self-acting reels and the finishing rolls of the rolling mill. If desired, the finished wire rod could be delivered by means of the switch through the third pipe, and distributed in loops over the large iron floor and coiled, as had been the practice before this trial.

Int. 9. How were the coils taken from these reels? Refer to any patent showing devices used, if it will shorten your answer.

Ans. By means of devices illustrated in patent No. 220,300, issued to Charles H. Morgan, and dated Oct. 7, 1879.

Int. 10. When was this apparatus—I mean the two reels and the overhead expanding grapple—first tested, as nearly as you have been able to fix a date?

Ans. In the spring of 1879.

(Counsel for Morgan desires to state that all the preceding questions and answers are immaterial, irrelevant, and not rebuttal.)

Int. 11. How did the reels used in that experiment in the spring of 1879 differ from those shown in patent No. 220,300?

Ans. They differed from patent No. 220,300 in that there was no seizing device for catching the first end of the wire rod when delivered from the finishing rolls. The reels as tested in the spring of 1879 were mounted to turn upon vertical shafts, and were composed

of a face plate having an inner and an outer row of upwardly projecting pins which formed an annular space into which the red-hot finished wire rod was passed as rapidly as delivered from the finishing rolls and deposited in coils upon that part of the face
220 plate of the reel between the outer and inner row of spokes. The reeling was accomplished automatically in this way, from the fact that the reel was made to turn at the same speed at which the finished wire rod was delivered to the reel.

Int. 12. Please look at Exhibit Stover Sketch: state who made it, and when: and explain how it happened that it does not show the "clearer" which is shown in Stover's patent.

Ans. I made the sketch on the 26th of October, 1878. In making this sketch I only illustrated such parts of Mr. Stover's idea as were new to me. The idea of a stripper was not new to me, for I had conceived of such a device during January or February, 1878. I also described a stripper to Mr. George Bedson and his son, Joseph Phillips Bedson, in April of 1878.

(Objected to on same grounds as former answers, and same notice is given.)

(Adjourned.)

JUNE 21, 1887, 2.15 p. m.

Int. 13. Do you recollect when you first described your invention for receiving the hot wire rod directly into the reel from the last pair of rolls, where you were, and what Mr. Morgan said, if anything, in regard to it?

(Objected to as above.)

Ans. It was on the railroad train from Paris to Cologne, on the twenty-ninth day of May, 1878, and Mr. Morgan was very much interested in the description which I gave him.

Int. 14. Have you been able to find the drawings prepared in connection with the first experimental test of an automatic reel with a vertical axis receiving the hot wire rod directly from the last pair of rolls?

(Objected to as above.)

Ans. I have, and now produce the drawings.

(Objected to same as before.)

Int. 15. Please explain these drawings briefly, and give their dates.

Ans. The first drawing illustrates two automatic or self-acting tub reels, mounted to turn on vertical shafts: the face plate and peripheral rim, which form the coiling space, are cast in one
221 continuous piece, thereby forming a "tub." On the inner surface of the face plate and peripheral rim are upwardly and inwardly projecting ribs. There is also an inner row of spokes which with the peripheral rim form an annular space into which the red-hot finished wire rod can be delivered by suitable guide-pipes which have facilities for alternately switching and directing

the finished wire rod to either of the reels. There are also facilities illustrated in this drawing for stopping and starting the rotation of the reels; also pulleys and driving belt for imparting motion direct from the same motor that drives the rolling mill. This drawing I made myself, and it was completed in February or March, 1879, and previous to March 8, 1879.

The second drawing I exhibit illustrates a full-sized drawing of a "tub reel" in which the face plate is made as one casting, and the peripheral rim is formed from a piece of one-quarter-inch boiler iron riveted to wrought-iron ribs which project inwardly from the inner surface of the boiler-iron rim. There is also an inner row of spokes which, with the peripheral rim and inwardly projecting ribs, form the annular coiling space into which the wire rod is coiled. This drawing also illustrates upwardly projecting ribs from the face plate. I made this drawing March 8, 1879.

The third drawing illustrates the general plan of automatic reels for continuous mill No. 2, and are a pair of tub reels of the same construction as shown in the drawing of March 8, 1879. The driving arrangements, switch and guide-pipes are the same as illustrated in the drawing I first described as completed in February or March, 1879, and previous to March 8, 1879. I made this drawing on the 21st of March, 1879.

(Objected to same as before.)

Int. 16. How were the reels used in the first experimental test in the spring of 1879 constructed in detail? I refer, of course, to the pair of reels, on vertical shafts, into which the hot wire rod poured directly from the last pair of rolls.

(Objected to.)

Ans. These reels were constructed from drawing marked "Details of automatic reel, continuous mill No. 2. Scale full size. March 8, 1879;" and from drawing marked "General plan of auto-
222 matic reel for continuous mill No. 2. Scale three-quarter inch = 1 ft. March 21, 1879."

(The three drawings are now put in evidence, and marked "Exhibit First Test No. 1," "Exhibit First Test No. 2," "Exhibit First Test No. 3."

Objected to.)

Int. 17. Why was the construction of the reels, as shown in Exhibit First Test No. 1, with the outer rim or case in one piece with the face plate, modified by making two rows of arms or spokes, with an outer rim or case of boiler iron riveted onto the outer ring of spokes, as shown in Exhibit First Test No. 2?

(Objected to as above.)

Ans. My original conception of an automatic reel for receiving red-hot wire rod by pouring the rod into a revolving receptacle was a tub mounted on a vertical shaft. On Exhibit First Test No 1 I made that drawing, having this original conception of a tub reel in view, and it seemed to be the simplest way to make a tub by mak-

ing the face plate and outer rim as one casting. After discussing this drawing with Mr. Morgan, the general superintendent of the Washburn & Moen Manufacturing Company, he directed me to make other drawings, which are marked "Exhibit First Test No. 2," "Exhibit First Test No. 3." These drawings had two rows of arms or spokes, with an outer rim or case of boiler iron, making substantially the same tub reel as illustrated in Exhibit First Test No. 1. Mr. Morgan's idea was to construct the reel illustrated in Exhibit First Test No. 2 and Exhibit First Test No. 3, so that by removing the boiler iron or peripheral rim we would have a reel composed of an inner and outer row of spokes.

Int. 18. Did you know, at that time, that Mr. Morgan asserted that he was the inventor of a reel with the two concentric rows of spokes?

(Objected to as above.)

Ans. I did.

(Objected to as above.)

Int. 19. Please look at patent No. 224,941, to Mr. Morgan, and state what is claimed, in substance, in your opinion, and also
223 read, so that the magistrate can copy it, the disclaimer in lines 89 to 92.

(Objected to as before, and as incompetent.)

Ans. The claim is for a reel consisting of an inner and outer row of spokes. I read lines 89 to 92: "I am aware that a reel having one set of arms and an outer case is claimed in a pending application of myself and Fred. H. Daniels, the same being our joint invention."

Int. 20. I have not been able to find any patent to you and Mr. Morgan, jointly claiming your tub reel as the joint invention of you and Mr. Morgan, but see that patent No. 224,942 to you and Mr. Morgan was applied for Feb. 20, 1879. On the same day Mr. Morgan applied for his patent, 224,941. The patent 224,942 does not claim the tub reel, but as it is granted to you and Mr. Morgan jointly, please explain what joint invention is shown in it, and state also when you first knew that Mr. Morgan asserted that he had any part, as inventor, in the tub reel, on the vertical axis, into which the hot wire rod was poured from the last pair of rolls, and also whether it is true or not that you ever filed any application jointly with Mr. Morgan, asserting, in substance, that this reel was the joint invention of Mr. Morgan and yourself.

(Objected to same as before.)

Ans. The joint inventions of Mr. Morgan and myself, illustrated in patent No. 224,942, and dated Feb. 24, 1880, are, first, the combination with the finishing rolls of a wire-rod rolling mill, of a guiding pipe for delivering the hot wire rod to a rotating coiling pipe. Second, the idea of arranging non-revolvable coiling receptacles upon a turn-table. I never heard Mr. Morgan assert that he had any part as inventor of the tub reel on a vertical axis, into

which hot wire rod was poured from the finishing rolls of a rolling mill. I never filed any application jointly with Mr. Morgan for a tub reel.

Int. 21. Who is the first inventor, as far as you know, or have any reason to believe, of that improvement in wire-rod rolling which consists in having the wire poured directly from the last pair of rolls into a reel revolving with sufficient speed to coil the wire rod?

(Objected to same as before.)

224 Ans. As far as I know, I believe that I first conceived and suggested this idea myself.

(Objected to same as before.)

Int. 22. Did Mr. Morgan know, when you were preparing, under his direction, for this first test in the spring of 1879, of your plan for getting the coils out of the automatic reels? If so, how did he know of it, and why did it not appear in the drawings, Exhibit First Test No. 1, Exhibit First Test No. 2 and Exhibit First Test No. 3?

(Objected to same as before.)

Ans. He did know that I had a plan for discharging the coils out of an automatic reel, but it did not appear in these Exhibits First Test Nos. 1, 2 and 3, for the reason that Mr. Morgan wished to test his plan of expanding discharging tongs, illustrated in C. H. Morgan's patent, No. 220,300, patented Oct. 7, 1879. Mr. Morgan knew that I had a plan of a discharging platform in combination with an automatic reel, for I went to him and described the plan as a better one, in my opinion, than the discharging tongs.

Int. 23. What was the result of this first test in the spring of 1879? About how long did that test occupy?

Ans. The coiling of the wire in this test was perfectly satisfactory, but the overhead expanding discharging tongs could not be made to work. I should judge these reels were in the No. 2 continuous mill for about four weeks, and several trials were made with them.

Int. 24. What was next done as to the rolling of small rods, or the use of automatic reels for that purpose, and when?

Ans. Mr. Morgan had constructed a reel in accordance with his invention, which was a reel mounted on an inclined axis. This reel was completed and tested during the summer of 1879.

Int. 25. What date does the first drawing of this reel, that you have found, bear? Please produce the drawing for the inspection of Mr. Morgan and his counsel; state what writing is on it; and state whose writing it is.

Ans. May 7, 1879. I now produce the drawing. The writing on it is "May 7, 1879. C. H. M." This is Mr. Charles H. Morgan's handwriting.

225 Int. 26. Please look at patent No. 224,787, to C. H. Morgan, and state how the thing shown in that drawing of that patent

resembles or differs from the reel used in the second test made by Mr. Morgan in the summer of 1879.

Ans. I do not see any difference.

Int. 27. What was the result of that second test, and about how long did it occupy?

Ans. This reel did not work successfully, and the results were not at all satisfactory. I should say the time occupied in making this test was about six weeks.

Int. 28. What was the main object in view in making this first and second test?

Ans. Mr. Morgan wished to make a thorough trial of his own plans, which was done in these two trials, before adopting my suggestion of a discharging platform in combination with an automatic reel.

Int. 29. Please explain the advantages of the automatic reel into which the wire rod pours from the last pair of rolls, and from which the coils are discharged by the discharging platform, especially as to dispensing with a part of the plant and workmen necessary in the old plan, and as to getting rid of certain limitation as to the speed of the hot wire rod, and as to the size of the rods which can be perfectly rolled.

(Objected to for same reason as above.)

Ans. By means of the automatic reel and the discharging platform we are enabled to form coils of wire rod entirely free from kinks and snarls and loosely coiled, which is of advantage during the pickling and final drawing of the wire. The automatic reel also does away with the necessity of putting in the large iron distributing floor, and the construction of some forty feet of building. Another advantage obtained by using the automatic reel is the high rate of speed at which the rolls of the mill can run, thereby producing larger quantities of finished wire rod per hour, and at the same time not limiting the size to which it is possible to reduce the wire rod, as has heretofore been the case in using the old system of reeling, with the intermediate distributing floor.

Int. 30. When No. 2 continuous mill was built, I understand
226 that two extra pair of rolls and housings, and all else complete, were made. Why were they not used in that mill in 1878 and 1879, when the mill was first run?

Ans. When the mill was first started we had great difficulty in reeling the finished wire rod by the old system of reeling with a distributing floor between the reel and the finishing rolls of the mill. By adding two more rolls to the mill, as then operated, the delivery of finished wire rod upon the distributing floor would have been certainly one-third faster, and it would have been impossible to properly reel the wire rod without an automatic reel.

Int. 31. When did you make Exhibit Daniels Drawing No. 1, in relation to Mr. Morgan's first test?

(Objected to by Mr. Pollok; objection same as before.)

Ans. About the same time, or a little before.

Int. 32. State the substance of any conversation you had with Mr. Morgan after the failure of his second test in the summer of 1879, and in relation to the third attempt to perfect the automatic reel into which the metal passed from the last pair of rolls?

(Objected to as not rebuttal.)

Ans. I had some talk with Mr. Morgan regarding this subject, during which I told him that I believed the discharging platform was the way to get the coil of wire rod out of the automatic reel. I received instructions from Mr. Morgan to prepare drawings for such a reel. These drawings are illustrated by Exhibit Daniels Drawing No. 2.

Int. 33. Was the third test made with the reel shown in Exhibit Daniels Drawing No. 2, as testified by you in your answer to Int. 31, of your former deposition?

Ans. It was.

Int. 34. Do you now know any circumstance which you believe accounts for the failure to finish the reel shown in Exhibit Daniels Drawing No. 3, as described in your answer to Int. 37, of your former deposition? If so, please state why that reel was not finished and put in use early in 1880, so far as you now have reason to believe.

(Objected to as not rebuttal.)

227 Ans. Mr. Morgan, whose duty it was to complete these automatic reels, was largely interested in an invention known as salt coating; on account of this invention I believe Mr. Morgan did not deem it expedient to complete these reels.

(Adjourned.)

JUNE 22, 9 a. m., 1887.

Int. 35. Please refer to Int. 20, cross-ints. 1, 2 and 3, of Mr. Morgan's deposition, printed record, and state the substance of the conversation therein referred to, and the circumstances under which those talks were had.

Ans. Mr. Morgan came to me and said that he would like to have a talk with me in confidence, and invited me into his carriage in order to have this talk by ourselves without interruption. Mr. Morgan went on to relate his past friendship for me, and stated that it had always been shown except in the case of those foreign patents which he took out in his own name, and in which I was interested with him in the American patents. He admitted that he had not acted fairly to me in this particular. He asked me if I was satisfied with my contract with the company. I told him that of course I should have liked a better one, but that as I got all I asked I had no reason to complain. Mr. Morgan said he was sorry that I had signed the contract with Mr. Moen so soon; that I could have obtained a better one, and he intended to have a talk with me before I signed the paper, in order that I might have made a more satisfactory arrangement. This, of course, made me feel very much dissatisfied. Mr. Morgan then alluded to the automatic reel, which

is the subject of this interference, and told me that it would not be of any advantage for me to obtain the patent, as it would then become the property of the company, while if he should obtain the patent he could derive great personal benefit. I told him that without doubt he thought he invented the reel, or he would not have applied for a patent for the same. I also told him that I invented the reel with the discharging platform, and urged Mr. Morgan to settle the interference by arbitration or in some other amicable manner, as I did not wish to have our former friendship and good feeling destroyed, as might be the case if the matter was put through the regular course of interference in the Patent Office. Ref-
228 erence was then made to the Pielsticker matter, and Mr. Morgan told me I had no right to go to the directors in such cases. I said that I had never been except when called by them. He said I should always come to him in such cases. I told him that was putting me between two fires, and asked his advice as to what course I should pursue; his advice was not to have one word to say with the directors except in his presence. At the close of this ride and conversation, which was on the Millbury road, Mr. Morgan told me he wished it understood that this conversation should be strictly confidential, and I had every reason to believe that such would be the case. On the following day I was invited to ride to Quinsigamond with Mr. Morgan. He asked me if I had considered the conversation of the previous day. I told him I had, and that I was very desirous of having the dispute in question settled in some quick and friendly manner, but that in either case I should feel obliged to do my best to win. During another conversation later on, with Mr. Morgan, in the No. 6 continuous rolling mill at Quinsigamond, I told Mr. Morgan how I came to apply for the patent. That during a conversation upon another subject with Mr. Charles F. Washburn, vice-president of the Washburn & Moen Manufacturing Company, I told Mr. Washburn that I believed the discharging platform in combination with an automatic reel was an important improvement, and should be patented. He asked me who invented the improvement. I told him that I did, and was told by Mr. Washburn if such was the case, to get it patented by all means. During the conversation with Mr. Morgan I again urged the importance of settling the question in interference in some amicable manner.

Int. 36. Please read Ints. 45, 46, 47, 48, of Mr. Morgan's deposition, printed record, and state, briefly, wherein he is wrong in his answer to those questions.

(Objected to as assuming that Morgan is wrong.)

Ans. The first reel that was ever tested, so far as I know, was the tub reel illustrated by drawings Exhibits First Test No. 1, No. 2, No. 3, instead of the reel illustrated by patent to C. H. Morgan, No. 224,787; and this first attempt of automatic reeling of wire rods was made in the spring of 1879. In answer to Int. 47, it is stated that the reel tested in December, 1879, was set one side.
229 Such was not the case, for I made new drawings and person-

ally instructed the master mechanic of the Washburn & Moen Manufacturing Company regarding modifications of this reel, which should have prevented the difficulties encountered in testing the reel described in Mr. Morgan's answer to Int. 47.

Int. 37. Mr. Morgan's remembrance is that the first attempt was made with the reel shown in patent No. 224,787. Although you have already testified as to this, please state whether that was the first or second attempt, and whether it was made in the autumn or summer of 1879.

Ans. Patent No. 224,787 illustrates the second attempt, and it was made in the summer of 1879.

Int. 38. What connection has Mr. Morgan's order, No. 26, dated Feb. 2, 1880, to Mr. Young, with the automatic reel and lifting platform shown in Exhibits Daniels Drawing No. 2, and Daniels Drawing No. 3? and state the circumstances under which that order was given by Mr. Morgan.

Ans. At that time and up to the time of this interference the fact that I invented this automatic reel having a lifting platform had never been disputed; and I directed Mr. Young regarding the reels which were built from Exhibit Daniels Drawing No. 2, and partially rebuilt from Exhibit Daniels Drawing No. 3. This order was written by Mr. Morgan, in order that I might confer with Mr. Young regarding the completion of the reels.

Int. 39. Please read Ints. 57, 58, 59, 60, 61, 62, Mr. Morgan's deposition, printed record, and state what Mr. Morgan had to do with the making of that drawing called "Exhibit Charles H. Morgan No 5," and state also in the course of your answer whether the drawing marked "Exhibit Charles H. Morgan No. 5" is a copy or an original drawing; and if it be a copy, what is it a copy of?

Ans. Mr. Morgan did not have anything to do with the preparation of the drawing called "Exhibit Charles H. Morgan No. 5." I came to Mr. Morgan and told him that I believed my plan for a discharging platform was a good one, and was told to go ahead and make a drawing of it, which I did without any direction from him until the drawing was completed and handed to Mr. Morgan
230 for inspection. He suggested an alteration in the framework and one of the shaft boxes. The Exhibit Charles H. Morgan No. 5 is a blue print from a tracing of my Exhibit Daniels Drawing No. 1, and I furnished him the blue print.

Int. 40. Mr. Morgan's answer to Int. 64, printed record, please refer to it and correct it.

Ans. After the completion of the reel tests in the fall of 1879, I made the drawings Exhibit Daniels Drawings No. 3, and described them to Mr. Young, and the reels were partially rebuilt in the first part of 1880.

Int. 41. What knowledge did Mr. Charles H. Morgan have of this, if any?

Ans. He knew what was being done, but seemed to have lost all interest in the subject, and the reels were not completed.

Int. 42. Please read Mr. Morgan's answer to Int. 67, printed

record, and state whether you understand it or not; and if so, what you understand it to mean.

Ans. I do not understand what the answer means. I never knew or heard that Mr. Morgan ever had a model and drawings made of the reel in controversy. He might have referred in this answer to the Stover model, but it does not seem possible that the answer can refer to the reel in controversy.

(Counsel for Morgan states that his attention has just been called by his client to what appears to be a typographical error, or perhaps a clerical error in the record itself, and that the word "with," in the second line of the answer to Int. 67, ought to be "without."

It is also agreed that the words "and when," in the first line of the answer to Int. 65, should be "was then.")

Int. 43. If that answer to Int. 67 should mean that Mr. Morgan had before the end of the year 1879, or before the end of the year 1880, or at any other time prior to the fall of 1885, a model made showing any way or in any manner illustrating a reel with the lifting device now in controversy, would the answer thus interpreted be true or false, so far as you know or have any reason to believe? State how positive you are in your answer.

(Objected to on the ground that the question includes a knowingly false hypothesis, and is a mere pretext for allowing the
231 witness to give a false color and perverted sense to the deposition of Mr. Morgan.)

Ans. It would be false. I am positive in this statement, for Mr. Morgan never questioned my right to this invention until he filed his patent application for the same; and I am confident that Mr. Morgan would never have made a model and drawings of this invention without my knowledge and consent at the time referred to in the question.

Int. 44. What are the changes referred to in the latter part of Mr. Morgan's answer to Int. 65, printed record? and if they are shown in any of the exhibits, state which.

Ans. The changes referred to are for more positive stopping and starting devices; also, for stopping the rotation of the reel before the discharging platform should deliver the coil clear of the walls of reel. These changes are illustrated in Exhibit Daniels Drawing No. 3.

Int. 45. Refer to Mr. Morgan's answer to Int. 70, printed record, and state briefly, and only so far as you know, what, if anything, had occurred prior to the fall of 1885, tending to make Mr. Morgan somewhat hostile to the Washburn & Moen Company, and more or less disposed to disregard any rights you might have or think you had in relation to the rolling of small wire rods.

(Objected to as improper, and insinuating motives on the part of Mr. Morgan, calling for hearsay evidence and gossip.)

Ans. During February, 1885, Mr. Morgan invited me to be present at a meeting of the directors of the Washburn & Moen Manu-

facturing Company, at which time Mr. Edwin S. Lenox exhibited a system for rolling wire rods of a much smaller sectional area than had been the practice heretofore. After this meeting I went with Mr. Morgan down to the No. 2 continuous rolling mill. Mr. Morgan seemed very much exercised regarding the suggestion of Mr. Lenox, and discussed with me the possibility of their plan succeeding: later on, about the 1st of April, Mr. Morgan resigned as general superintendent of the Washburn & Moen Manufacturing Company, and from plans Mr. Morgan showed me after this resignation, I learned that his relations with the company had not been satisfactory to him. Mr. Morgan went to Europe during the
232 summer of 1885, and during his absence, by request from the directors, I suggested a plan for rolling small wire rods, which I told the directors, or Mr. Charles F. Washburn, one of the directors, would succeed, and give the company small rods quicker and better than by any of the Lenox plans I had seen. I also, at this time, advised the completion of this particular reel in interference. Orders were——

(Counsel for Morgan objects to the witness continuing in this line, as being a mere repetition of what he has already testified in chief, and only intended to give different color to the same, in view of what had been brought out on behalf of Mr. Morgan; and further, the matter inquired about and the answers of the witness not being in any sense rebuttal; and further, the witness's answer is not responsive to the question.)

—at this time issued to prepare to roll small rods by this system. Later on, in September, Mr. Morgan returned as general superintendent of the Washburn & Moen Manufacturing Company, and learning what had been done, in accordance with my suggestion, toward rolling small rods, he countermanded the order. I then first learned that Mr. Morgan was inclined to disregard certain rights which I believed I had, in that he countermanded this work that was of great interest to me, and which I had started during his absence, and while he was out of the employ of the company. Mr. Morgan, of course, had the right, as general superintendent, to countermand these orders; but as it involved a reel which I had invented and also suggestions regarding the best way of rolling small wire rods, I felt that it would have been quite proper to have discussed the question with me before making any changes, and also obtained my ideas regarding the reels which were afterwards constructed, and which involved the subject-matter of this interference.

Int. 46. Mr. Morgan, in his answer to Int. 70, printed record, states that the first pair of reels tested after his return in the fall of 1885, and in the month of March, 1886, "worked much better than any reels that we had made trial of before." Are these the reels referred to in your answers to Ints. 46 and 47, of your former deposition? and in the course of your answer correct the omission which appears in the second sentence of your answer to Int. 47, as printed.

233 Ans. They are. That sentence in my answer to Int. 47 of my deposition does not make sense as it is printed, and should read as follows: "Friction brake 14 was made of leather, which bore against the surface of the reel friction, and on account of the burning away of the leather it was defective."

Int. 48. Mr. Morgan also says, in the answer to Int. 70, printed record, that this pair of reels, first tested in March, 1886, with No. 2 continuous mill, was removed, "and some slight changes made in it, 'and put up in connection with No. 1 continuous mill,' and a further trial of this same reel (meaning pair of reels) was made about the month of May, 1886." What were these changes, and are they described in the answer to Int. 48 of your former deposition as printed, and was the reel ever tried, or not, with the No. 1 continuous mill?

(Objected to as not rebuttal and simply going over again the witness's own deposition when examined in chief.)

Ans. These changes are described in answer to Int. 48 of my former deposition. The reel was never tested to any extent, except so far as it could be tested without coiling complete coils of hot wire rod, for we only rolled a very few pieces of wire rod on this mill, and they were only four or five feet long.

Int. 49. Is the test of that first pair of reels, built by Morgan with No. 1 mill, the subject of your report to Mr. Morgan, dated June 3, 1886, Exhibit Charles H. Morgan No. 3? Please explain as to that, and at the same time refer to Mr. Morgan's answer to Int. 71, printed record State whether it is substantially correct or not.

Ans. I prepared this letter to Mr. Morgan at his request, and the reels for coiling the finished No. 10 wire rod seemed to work, as far as they were tested, perfectly satisfactorily.

Int. 50. Where is that reel now? I mean the pair referred to in Mr. Morgan's answer to Int. 70, and which were first tested in March, 1886, with the No. 2 continuous mill, and afterwards used slightly with the No. 5 mill—used as a secondary for No. 1 mill?

Ans. In the machine shop of the Washburn & Moen Manufacturing Company.

234 Int. 51. How much have they been used, including all tests and all use, if any, since those tests?

Ans. Only a few times during the tests in 1886, and not at all since.

Int. 52. Is Morgan's memory correct, as given in his answer to Int. 75, printed record?

Ans. It is not. The reel tested in continuous mill No. 1, in connection with the No. 5 mill, was driven by a Cone clutch instead of a Weston clutch.

Int. 53. How far is Mr. Morgan's answer to Int. 72, printed record, correct?

Ans. That answer is incorrect in that the reels prepared at this time were practically and substantially the same as those designed by myself and illustrated by myself in Exhibit Daniels Drawings

Nos. 1, 2, 3, with the exception that the reels illustrated by these three drawings were "tub reels," having an inner row of spokes.

Int. 54. Is Mr. Morgan correct in the answer to Int. 73, or not?

Ans. As far as I know, this statement is correct. I never knew that such a spring clutch as was suggested by Mr. Young had been in use upon looms.

Int. 55. My question was meant to be whether spring clutch, whether old or new, was used upon this first pair of reels made by Mr. Morgan in 1886?

Ans. It was not.

Int. 56. When did you last see this pair of reels, and about how long ago was it taken from No. 1 mill?

Ans. I saw these reels within a few days in our machine shop, and they were taken out of the No. 1 continuous rolling-mill building a few weeks ago and put into the machine shop.

Int. 57. Were they ordered from the No. 1 mill to the machine shop for alterations? If so, who gave the order?

Ans. They were. Mr. Charles H. Morgan ordered them to be built.

Int. 58. To what reels did Mr. Morgan refer, in his answer to Int. 73? Read the answer to Int. 74 before answering.

Ans. Mr. Morgan referred to the third pair of reels, which
235 were built in 1886, which were first tested in the No. 2 continuous mill with the Young clutch, and are now in use in our continuous mill No. 6, at Quinsigamond.

Int. 59. This third pair was the first with the Young clutch, as I understand you. Was it made next after the pair first tested in March, 1886, in No. 2 mill, next tested shortly after in the No. 1 and No. 5 mills, and now in the machine shop rebuilding?

Ans. It was the first with the Young clutch, but it was not made next after the pair first tested in March, 1886.

Int. 60. Has Mr. Morgan made any reference whatever, that you have discovered, in his deposition to a second pair made in 1886, *i. e.*, to a pair made next after the pair tested in March, 1886, and next before the first pair with the Young clutch?

Ans. No, sir; he has not.

Int. 61. What was the trouble with the second pair made in 1886? Where were they tested, and what became of them?

Ans. The stopping and starting clutch did not work satisfactorily. They were tested in the No. 2 continuous mill. They were then altered by introducing the Young clutch, and tested again in the No. 2 continuous mill. They are now running in continuous mill No. 2; but previous to their final adoption in the No. 2 mill an alteration was made in the hydraulic cylinder which operates the discharging platform, to prevent escaping water from wetting the belts.

Int. 62. Please read Ints. 81 to 84. Mr. Morgan's deposition, printed record, and answer them.

Ans. Mr. Morgan gave me instructions as occasion required, orally as well as by sketches, but it had not been my habit nor has it been the habit in the draughting-room, as far as I know, to pre-

serve such sketches, and I was never required by Mr. Morgan to procure a book for such sketches. The particular book referred to by Mr. Morgan, in his answer to Int. 83, was not the property of the Washburn & Moen Manufacturing Company, as I had that book for my own use, and it was made to order and by my order, and paid for from my own funds. I know that the draughtsmen and the draughting-room of the Washburn & Moen Manufacturing Company have had sketch books, and without doubt many of these books have been furnished by the company, but there have
236 never been used in the draughting-room any sketch books like the one which I have produced, and containing Exhibit Sketches; and I have not been able to find, after an inspection in the draughting-room within a few days, only two or three sketch books such as the draughtsmen have been in the habit of using. They were mostly small blank books.

Int. 63. Please answer Ints. 85 and 86, Mr. Morgan's deposition, substituting Morgan for Daniels in Int. 85.

(Counsel for Morgan requests counsel for Daniels to put the questions without subjecting the witness and the reader of the deposition to any mental gymnastics.)

The interrogatories will then read: "Int. 85. Were you in the habit, at that time, of communicating your ideas and plans to Mr. Morgan without reserve?" "Int. 86. Did it occur to you, at that time, to take any precautions to prevent your ideas and plans being claimed by him?"

Ans. To Int. 85 I answer—I was. To Int. 86 I answer—I did not.

Int. 64. In Mr. Morgan's answer to Int. 97, he gives certain reasons for countermanding the order to Mr. Young to construct the reels from Exhibit Daniels Drawing No. 3. Are his reasons sound or not?

(Objected to. Witness not an expert as to the soundness of the reasons.)

Ans. I do not consider that they are.

Int. 65. Mr. Morgan, in answer to Int. 115, intimates that Mr. Lambert introduced in Exhibit Lambert Model features which existed for the first time in 1886. What have you to say as to this.

Ans. Such is not the case. I had the idea of a convex platform in July, 1878, and describing my invention to Mr. Lambert at that time I conveyed to him the idea of a platform convex on its top side. I also had in mind to make it straight or flat as well as concave; but I soon saw that neither of these plans would work perfectly satisfactorily, on account of the danger of the wire wedging between the peripheral rim of the tub reel and the edge of the platform. In order to obviate this difficulty I introduced inwardly
237 projecting ribs on the inside of the peripheral rim, and made a platform cast in one piece and having a hub from which projected radial arms which extended by the inner edge of

the inwardly projecting ribs, as illustrated in Exhibit Daniels' Drawings 1, 2, and 3.

Int. 66. What have you to say as to statements derogatory to Lambert, in Mr. Morgan's answer to Int. 120, printed record?

Ans. I never considered Lambert a dissipated man; but at one time he was dissatisfied with his wages, and arrangements were made to meet this dissatisfaction by giving him a royalty in a certain invention of Lambert's instead of increasing his wages.

Int. 67. Do you know what parts of your reel, built in 1879 and 1880, were not destroyed; or what parts were referred to in Mr. Morgan's answer to Int. 121?

(Objected to as assuming that there was any reel known as the Daniels reel, and also because of the uncertainty involved in the question in regard to the date.)

Ans. The discharging platforms and the tub reels were not destroyed, the last time I looked the matter up, but the framework and all the driving parts have been destroyed. Mr. Morgan, in his answer to Int. 121, evidently intends to convey the idea that the lifting platforms of the first reel, tested in 1879, were in the No. 2 continuous mill building the last time he visited the mill, and such a statement is the fact.

Int. 68. Please refer to Mr. Morgan's Cross-ints. 149 and 150, and state how far the billet mill, as completed by Mr. Morgan, departed from your plan, and what it included of your plan.

(Objected to as irrelevant, immaterial, and relates to matter introduced in cross-examination by counsel for Daniels, and to that extent he was made a witness for Daniels, and not competent to rebut.)

Ans. The billet mill, as constructed by Mr. Morgan, comprises a series of seven pairs of rolls placed in a straight line, so that the rolling was accomplished without the use of hand labor. I showed Mr. Morgan a drawing exactly like the plan finally adopted, with the exception that my plan had six pairs of rolls in a series, instead of seven.

Int. 69. Please refer to Cross-int. 200, Morgan's deposition, and state what defects exist, if any, in the reel he refers to. State,
238 also, whether any serious defects exist or not, and lastly how the reel he there refers to compares as to practical efficiency with the reels he attempted to construct in 1886, before he had applied the Young clutch.

Ans. I do not know of any defects in the reel partially built from Exhibit Daniels Drawing No. 3 that would have prevented its successful working; without doubt, this reel would have lasted longer in practice had the whole framework been made of iron. The framework supporting the driving parts was made of iron, and the balance of the frame of wood, in order to avoid expense. I think the practical efficiency of this reel would have been far superior to any of the reels constructed before the application of the Young

clutch, and I am inclined to think it would have been as efficient as the reels driven by the Young clutch.

(Mr. Maynadier here announces the close of direct examination. Counsel for Mr. Morgan states that he waives the cross-examination of this witness upon all matters which from their nature are not capable of being corroborated by other witnesses, and which necessarily rests entirely upon the witness's own unsupported statement.)

Cross-int. 70. You related several conversations you had with Mr. Morgan which you said were of a confidential nature. Did you not the very next day communicate the same to Mr. Washburn?

Ans. I do not remember that I did.

Cross-int. 71. Your memory seems to be very good. You recollect with accuracy the minutest details of occurrences that happened years ago, and yet do not remember an act of your own of recent occurrence which is of some importance to this case. How is that?

Ans. I have made statements as to facts within my memory, and nothing more.

Cross-int. 72. Did you tell Mr. Washburn the story of your conversation with Mr. Morgan in the same manner as you gave it in your answer to Int. 35?

Ans. No, sir; I did not.

Cross-int. 73. Why not?

Ans. Because the talk was confidential.

Cross-int. 74. How and wherein did it differ?

239 Ans. I do not know that I conversed with Mr. Washburn at all regarding this conversation.

Cross-int. 75. Do you know that you didn't?

Ans. I do not remember that I did.

Cross-int. 76. Do you apply the same answer, if asked whether you told the story of your conversation with Mr. Morgan to Mr. Charles G. Washburn?

Ans. I do not.

Cross-int. 77. Then what answer do you make?

Ans. I told Charles G. Washburn about this conversation while in Washington, after Mr. Morgan's interpretation of it, and not before.

Cross-int. 78. In the same conversation it is stated by you, in your answer to Int. 35, you had urged Mr. Morgan to settle this interference by arbitration, or in some other amicable manner. Did you not know, then, that you had no control over this interference?

Ans. I did not.

Cross-int. 78½. You know it now, don't you?

Ans. I do not. I have never been compelled by the company to push the matter.

Cross-int. 79. Do you mean to say that you could have effected a settlement of the interference by arbitration without the knowledge or consent of the Washburn & Moen Manufacturing Company?

Ans. I do not know how far, or to what extent, my contract with the Washburn & Moen Manufacturing Company would be binding in this direction.

Cross-int. 80. Then why did you talk arbitration, knowing as you do and as you did that your contract with the company left you no discretion or independence of action in the premises?

Ans. Because the company first proposed that the matter should be arbitrated, and I do not believe that my contract was binding to such an extent as to have prevented me proposing it to Mr. Morgan.

Cross-int. 81. Then may I understand that your proposition to Mr. Morgan was made with the approval or at the suggestion of the company?

Ans. No, sir; I do not understand quite that.

Cross-int. 82. Then will you please explain what you mean by "the company first proposed arbitration"?

240 Ans. I meant just what I said. The company first proposed to me that the matter should be settled by arbitration, and I signified at that time my preference for such a settlement; at the same time urged the importance of avoiding any action that should have a tendency to destroy my friendly relations with Mr. Morgan.

Cross-int. 83. Did you tell Mr. Morgan that the proposition for an arbitration, as made by you, was made in behalf of the company?

Ans. I did not.

Cross-int. 84. Why not?

Ans. I did not have any authority to make a proposition in their behalf.

Cross-int. 85. Did you tell Mr. Morgan, or intimate, that it was the wish of the company to have this matter settled by arbitration?

Ans. I indicated to him that it could be settled by his conferring with them.

Cross-int. 86. And what did Mr. Morgan say, in answer to such indication?

Ans. He replied that such a settlement could not be brought about, and I am sure he told me that he had been to Mr. Moen about it.

Cross-int. 87. Did he tell you what Mr. Moen replied, whether Mr. Moen encouraged it or discouraged it?

Ans. He did not.

Cross-int. 88. What was the impression he left in your mind? Was it that he, Mr. Morgan, was unwilling to settle by arbitration, or that he, Mr. Moen, was unwilling to do so?

Ans. He did not impress me either way.

Cross-int. 89. It appears from your statements that you were very urgent for an arbitration, and you left that conversation without any impression as to Mr. Morgan's willingness or unwillingness to comply with your demand. How can you explain that?

Ans. My impression in my previous answer related to the con-

versation between Mr. Morgan and Mr. Moen. Regarding the conversation between Mr. Morgan and myself, I was impressed with a feeling that Mr. Morgan did not see how it could be settled in any other way than by interference. It is a fact that he has never
241 proposed any kind of a settlement to me, while I have been to him at two different times and requested him to arrange the matter in some amicable manner.

(Adjourned.)

WORCESTER, *June* 23, 9 a. m., 1887.

Cross-int. 90. You know, do you not, that Mr. Morgan is of a peaceable, and certainly not of a litigious, disposition, and indeed can ill afford to spend his money and time in fighting a powerful and wealthy and heartless corporation, that will by all means endeavor to attain its end?

Ans. My relations with Mr. Morgan have always been peaceable. As to his financial condition, I cannot state further than that I have been informed he had good financial backing in this matter.

Cross-int. 91. Will you please answer the question, without reference to yourself and without referring to information or gossip?

Ans. I cannot pass judgment upon this question, for I am not acquainted regarding facts of dispute which Mr. Morgan may have had from time to time, and have never inspected Mr. Morgan's accounts, nor been told by him as to his financial condition.

Cross-int. 92. Do you know of any lawsuit that Mr. Morgan has ever engaged in?

Ans. Yes, sir.

Cross-int. 93. Well, state what you know about it.

Ans. Mr. Morgan had a suit regarding paper-bag machinery, and I think I am correct in stating that he had another regarding hydraulic elevators.

Cross-int. 94. Don't you know that Mr. Morgan was not a party to the paper-bag suit?

Ans. I supposed he was, and am quite sure that he told me so.

Cross-int. 95. He told you that he was a party to the suit?

Ans. I understood he was, in that he was interested in the patents, but I may be mistaken regarding this point, not being thoroughly acquainted with all the facts regarding this paper-bag machinery contest.

Cross-int. 96. How old were you when that suit on the paper-bag machine was tried?

242 Ans. I must have been quite young; I think it was before I knew Mr. Morgan.

Cross-int 97. What do you know about that hydraulic-lift suit, and where was it tried, and who were the parties?

Ans. I have seen at some time, I cannot say when, parts of depositions taken in such a suit, but cannot state any definite facts regarding the subject, as it did not particularly interest me.

Cross-int 98. Don't you know that that was an interference gotten up by some Frenchman with a patent of Mr. Morgan obtained many years before, and that there was no testimony taken, and that

the interference was dismissed because it was found that the said Frenchman never had described, shown or claimed the subject matter of interference?

Ans. I am not acquainted with the particulars in this case. My information was gathered from a careless inspection of depositions regarding an hydraulic elevator interference, in which Mr. Morgan was interested.

Cross-int. 99. Will you explain what you meant, in your answer to Int. 90, by the statement, "I have been informed he had good financial backing in this matter?"

Ans. Just what I testified to.

Cross-int. 100. Have you any objections to saying just what you meant by the term "financial backing?"

Ans. No, sir. I meant, if the previous statement is not understood, that Mr. Morgan was supplied with funds, or will be, to prosecute this interference.

Cross-int. 101. By whom?

Ans. I do not know that he will be, but I was informed that such would be the case.

Cross-int. 102. By whom?

Ans. I was informed by one party that Mr. William E. Rice, of Worcester, was Mr. Morgan's backer.

Cross-int. 103. Who was your informer?

Ans. A party up town.

Cross-int. 104. Name him.

Ans. I cannot state positively who it was, as a number of persons have undertaken to talk with me upon the subject of this
243 interference, and I did not care to discuss the question of the interference, or private affairs of Mr. Morgan, and I paid little attention to these various reports.

Cross-int. 105. Who is the party up town?

Ans. I cannot state positively who it is.

Cross-int. 106. Whom did you have in your mind, when you stated that you received the information in regard to Mr. Rice being the financial backer of Mr. Morgan in this interference case, was a party up town?

Ans. I did not have any particular person in mind. I remember that this statement was made to me, and also, that I have been told by other persons that Mr. Morgan had good financial backing; but these reports not concerning me, I did not give any particular attention to them.

Cross-int. 107. You have stated that they have derived your information from a party up town. You have also stated that you derived it from other persons. Now, name one person.

Ans. Fred. W. Blackmer, I think, was one of the persons.

Cross-int. 108. Was he the party up town you have referred to?

Ans. I cannot say that he is the party I referred to as stating that Mr. Rice was backing Mr. Morgan.

Cross-int. 109. Now, who is Mr. Rice?

Ans. He is the proprietor of the Worcester Wire Company.

Cross-int. 110. Is he interested in the Washburn & Moen Manufacturing Company?

Ans. He is.

Cross-int. 111. Is he not the largest stockholder of the Washburn & Moen Manufacturing Company, with but one exception?

Ans. I do not know.

Cross-int. 112. Have you no information and belief on this subject?

Ans. He is largely interested.

Cross-int. 113. Have you been informed why Mr. Rice is backing Mr. Morgan in this interference?

Ans. Nothing further than that I have been told that Mr. Rice had purchased six acres of land near his works, and that Mr. Morgan was going to be associated with him.

244 Cross-int. 114. Is that all that you were told?

Ans. It is the substance of all that I recollect.

Cross-int. 115. And the story of Mr. Rice's backing of Mr. Morgan in this interference is a mere conjecture of yours?

Ans. It is nothing of the kind. I was informed that such was the case.

Cross-int. 116. During Mr Morgan's superintendency, was it not his practice to send you out to buy supplies, of which you presented him a memorandum, and that thereupon he gave you an order on the cashier for the money?

Ans. I have often been sent by Mr. Morgan to buy supplies, but I do not remember that he gave me an order on the cashier for money to buy any supplies with.

Cross-int. 117. (Question repeated.)

Ans. I always had a bill sent to the company for whatevor purchases I made.

Cross-int. 118. Was that your invariable custom?

Ans. It is possible there might have been exceptions.

Cross-int. 119. Was not the exception general, when small purchases were made?

Ans. No, sir.

Cross-int. 120. Was it frequent?

Ans. No, sir; I should say not.

Cross-int. 121. Could you give me an idea how often in a year such a thing could happen?

Ans. Very seldom. Most of our supplies I purchased of parties with whom the company had an account.

Cross-int. 122. Referring to your answer to Int. 45: You have stated that Mr. Morgan was very much exercised regarding the suggestion of Lenox, and discussed with you the possibility of the plan succeeding; this, according to your statement of the case, after the meeting of directors of the Washburn & Moen Manufacturing Company, February, 1885, at which time Mr. Lenox exhibited a system of rolling wire rods. What was the reason of Mr. Morgan's excitement?

Ans. Mr. Morgan had not been interested, as far as I knew, in

rolling small wire rods for some four or five years, and this
245 exhibition by Mr. Lenox seemed to interest him in the subject of small-rod rolling.

Cross-int. 123. He called you in, did he not, to the directors' meeting, to have you see and hear of something new, and to get your judgment in relation thereto?

Ans. That is as I understood it. Mr. Morgan told me that Mr. Lenox had a plan for rolling small wire rods that would effect a large saving.

Cross-int. 124. Did he tell you what it was, before the meeting?

Ans. I do not think that he did.

Cross-int. 125. He expected you to be instructed in regard to that plan of Lenox by Mr. Lenox himself at that meeting?

Ans. I should think so.

Cross-int. 126. And you gave him to understand that your mind was a blank on the subject, and that you had formed no opinion in regard to it, and that you knew nothing about it?

Ans. I did not.

Cross-int. 127. Did you tell him that you had already been in conversation, and had some dealings in relation thereto, with Mr. Lenox, before you were called to that meeting in February, 1885?

Ans. I told Mr. Morgan that Mr. Lenox had described to me intermediate hot reels, three or four years before, and that I could not see any practical benefit from his plans. I never had any dealings with Mr. Lenox regarding any such plans.

Cross-int. 128. Referring to you answer to Int. 45, you have stated that from plans "Mr. Morgan showed me after his resignation," you learned that his relations with the company had not been satisfactory to him. Will you please make that intelligible?

Ans. I think it was in June, Mr. Morgan showed me a plan of an intermediate hot reel, which has since been known as the anti-inertia reel, and asked me if I thought it would work. He told me he thought it a better plan for intermediate reeling and heating than those shown by Mr. Lenox in February.

(Close of cross-examination.

Witness says he has not got through with his answer, and proceeds:)

246 As Mr. Lenox had previously shown me the same system, I saw at once that there might be a dispute, which, with Mr. Morgan's resignation, made me come to the conclusion referred to in answer to Int. 45.

Cross-int. 129. Before leaving the stand, explain what was the method practised for many years, of taking off the coils of wire from horizontal reels.

Ans. There were various ways in use. I have seen the coil taken off by an operator with a hook. In other mills the coil has been deposited upon a truck by hooking the coil off the reel and allowing it to fall upon the truck, after which an attendant wheeled the coil to the place of deposit. Again, it has been customary to remove the coil by tongs, supported from an overhead truck movable back

and forth on an overhead track. After removing the coil from the reel with the tongs, in the hands of an operator, the coil was transferred from the reel to the place of deposit by traversing the truck-suspended tongs and coil along the overhead track.

Cross-int. 130. Are you not the inventor of the last-described mode?

Ans. No, sir; I am not.

(Close of cross-examination.)

FRED. HARRIS DANIELS.

Deposition of Charles F. Washburn.

CHARLES F. WASHBURN, being duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded by Mr. Maynadier, counsel for Daniels, doth depose and say:

Int. 1. What is your name, and have you before testified in this case?

Ans. Charles F. Washburn. Yes.

Int. 2. Please read Mr. Morgan's answer to Int. 77, printed record, and state the substance of your conversation with Mr. Morgan in regard to Mr. Daniels following Mr. Morgan to Europe.

Ans. I suggested to Mr. Morgan, or rather urged upon
247 him, the propriety of Mr. Daniels accompanying him on this proposed European trip, setting forth as among the reasons the facts that he proposed to accomplish a great deal in a short time; that Daniels was thoroughly conversant with the line of machinery which it was his main mission to examine; was a first-class engineer in that line; and that I was convinced, in view of the foregoing, that they would accomplish much better work, and be able to make a more exhaustive and satisfactory report on their return, if both should be on the ground in company.

Int. 3. Please read Mr. Morgan's answer to Int. 23, printed record, and state — substance of any talk you ever had with Mr. Daniels as to his being the inventor of this reel and lifting platform, and as to Daniels applying for a patent for it, and as to Daniels filing the preliminary statements after the interference was declared.

(Objected to as not rebuttal. In the answer referred to, Mr. Morgan related a conversation with Mr. Daniels, and repeated statements of Daniels, and if the witness is produced for the purpose of denying the statements contained in said answer, it is in rebuttal of Daniels and not of Morgan.)

Ans. In conversation with Mr. Daniels I asked him if he couldn't suggest some way in which we could procure some small rods right off. He answered that he would address me a note on the subject, which I shortly received. He recommended adding a pair of rolls to our No. 2 continuous mill, and finishing up a reel, which he designated in some way, which could take care of such small rods. I think this was the purport of the note I received from him. I then

called him to explain some details, and when we came to the reel (remembering the agreements we had with Mr. Morgan and with Mr. Daniels, severally, with reference to their inventions), I asked him who invented that reel. He answered that he invented it, and that he believed it should be patented. I quite agreed with him, under the circumstances, and so expressed myself. I do not remember in detail the reference to the preliminary statements. I only know in a general way they were filed.

248 Cross-examination by Mr. POLLOK:

Cross-int. 4. Do you remember where the conversation related in your answer to Int. 2 took place?

Ans. If you refer to the alleged conversation I had with Mr. Morgan with reference to Daniels being abroad at the same time with himself, the conversation took place in a hack, or public carriage, in New York city.

Cross-int. 5. Was the hack going to any particular place? If so, state where.

Ans. Mr. Morgan was to sail from some wharf in the lower part of the city, on this mission above referred to, within a very short time, say an hour or two, and the carriage was headed for the part of the city from which, it was my impression, he was to sail; as I think I did not finish the ride with him, I could only infer where the carriage might be going.

Cross-int. 6. Did you know the late Lucius J. Knowles, of Worcester?

Ans. Yes.

Cross-int. 7. Do you remember having met him in New York, on the occasion you saw Mr. Morgan, just before he left for Europe in 1878?

Ans. If you refer to the same occasion named by me in my last answer above, regarding the carriage ride, I do not.

Cross-int. 8. Where did you stop in New York, on that occasion?

Ans. Either at the Fifth Avenue or at Murray Hill.

Cross-int. 9. Allow me to inform you that it was the Ffth Avenue, because the Murray Hill was not built. Now, did not Mr. Knowles meet you at the Fifth Avenue hotel on that occasion, and tell you that Mr. Morgan had been to him and expressed a desire to have Daniels sent after him to assist him in his work?

Ans. Mr. Knowles neither met me at that time, neither did he at that time, or at any other, name Mr. Daniels nor Mr. Morgan to me in any such connection.

Cross-int. 10. Are you as positive of this as you are of your having stopped either at the Fifth Avenue or Murray Hill hotel?

249 Ans. I cannot compare degrees of remembrance or non-remembrance, under oath.

Cross-int. 11. Do you remember on what day Mr. Morgan sailed; by what steamer; by what line?

Ans. Neither, but can ascertain readily.

Cross-int. 12. Did you not yourself engage Mr. Morgan's passage?

Ans. I did not, but I might have instructed a clerk to do it.

Cross-int. 13. Did you confer with Mr. Moen in regard to sending Mr. Daniels to Europe in 1878?

Ans. I did.

Cross-int. 14. Was that before or after Mr. Morgan's departure for Europe?

Ans. After, if he sailed the day I took the ride with him above referred to.

Cross-int. 15. And if it wasn't that day?

Ans. Very soon after I reached home, probably the next day.

Cross-int. 16. Was it after Mr. Morgan's departure?

Ans. I should say it was.

Cross-int. 17. Is Mr. Moen's memory pretty accurate?

Ans. I consider it quite so.

Cross-int. 18. Mr. Moen testified that Mr. Daniels's going, in 1878, to Europe, was the result of a conference between Mr. Morgan, Mr. Washburn and himself. What is your present recollection?

(Objected to, as Daniels's counsel has no recollection of such testimony, unless the witness be referred to that part of Mr. Moen's testimony.)

Ans. My recollection is still as above stated.

Cross-int. 19. How long had Mr. Daniels been in your employ when you sent him to Europe to be with Mr. Morgan, and what were your personal opportunities of appreciating his special aptitudes and qualifications for the work you sent him for?

Ans. He had been with us some years, six years, more or less, I should say; and with reference to his aptitude for the particular business he was employed at here: in the first place, I knew
250 he was a graduate of our Technical school here; I knew he had been for some time at the head of our draughting department, which implies a high degree of skill and aptitude in this concern; and further, I had received the impression from Mr. Morgan, from time to time, that he was an excellent man for the place he was filling, the next man to Mr. Morgan on the premises in rank as to all mechanical matters; I especially was impressed at that time—when we sent him abroad to be with Mr. Morgan in 1878—that probably there was no man in the country, including Mr. Morgan himself, who was so thoroughly posted in detail with reference to the subject of rolling mills, in this or in the old European countries. The fact is, he had but just returned, in the summer of 1878, from a trip commenced by him in Europe about a year before, which had been prolonged some months beyond his original plan by especial request of our board, in order that he might, in view of his previous experience, exhaust as fully as possible the whole subject in certain other countries of Europe, as he had already, as we believed, so thoroughly accomplished with reference to the state of art, having reference to wire-rod machinery and rolling mills in Sweden.

Cross-int. 20. Mr. Daniels, in his own deposition in this case,

stated that he was first employed by this company in the fall of 1873; which was, therefore, less than five years, and not six or ten years, as you have stated. He further testified he left your employ in 1875, and went to Easton, Penn., for about eighteen months. Then he went to Europe in 1877, and remained there about ten months. How do you reconcile your recollections with Mr. Daniels's statements, as to time that you had opportunities for observing his aptitudes and qualifications?

Ans. I said nothing about ten years in my answer, and said nothing about six years, but qualified it by "more or less." I have not examined the records, and am not surprised to find it less than six years. The time he spent in Pennsylvania I took for granted was employed in a practical way, as we heard from him from time to time. We knew the eighteen months he spent in Sweden were spent in the closest study of the art of rod rolling, as already stated above. I consider, therefore, that my first statement, as made, is a proper one.

251 Cross-int. 21. You say you had knowledge of his doings in Sweden. Don't you mean that you had information or that you believe that he spent his time in Sweden in the closest study of the art of rod rolling?

Ans. I had reason to believe, from information, of course, that such had been the case.

Cross-int. 21½. What was the practical work that he was engaged in at Easton, that you refer to?

Ans. I haven't a very distinct impression as to the kind of work, but think it was in connection with a laboratory and some kind of manufacturing.

Cross-int. 22. Do you wish to be understood as saying that you kept up any particular interest in and made inquiries about Mr. Daniels, during the time he was in Easton and in Sweden?

Ans. Not so particularly while he was in Easton as while he was in Sweden.

Cross-int. 23. Did you pay his expenses in Sweden?

Ans. That is something the treasurer can tell you more about than I can.

Cross-int. 23½. I do not wish you to give the amount that was paid, if anything was paid, but I wish you to state the fact if his expenses, or part of his expenses, were paid him, or whether you paid him any salary.

Ans. I am wholly uninformed what, if anything, was paid him, but it must be a matter of record, and can be ascertained.

Cross-int. 24. How did your board come to make a special request to him to prolong his stay in Sweden some months beyond the original time, in order to improve himself?

Ans. I have not sworn that they did anything of the kind.

Cross-int. 25. From whom did you receive the information in regard to Daniels's close study and progress?

Ans. From Mr. Morgan, who was so well satisfied at the time that he was the best coadjutor that he could have in the important trip of 1878, and probably from others in this establishment, or con-

nected with this establishment, who would naturally follow with curiosity the course of so accomplished and persevering a young man as we all esteemed Daniels to be at that time.

252 Cross-int. 26. Do you know whether Daniels was employed as a draughtsman at any time from 1875 to 1878, when he came back from Europe?

Ans. I cannot swear what he was specifically employed to do; I only saw him about when he was at home. Have no positive knowledge as to the period when his employment began or ended, especially as draughtsman or head draughtsman.

Cross-int. 27. Do you remember the substance of your talk with Mr. Morgan in New York, previous to his departure for Europe?

Ans. Substantially nothing more than I testified to this morning.

Cross-int. 28. Did you instruct him to stop in England, and carry on some negotiations with Mr. Bedson.

Ans. The only thing of the kind I remember was the understanding that he should avail himself generally of Mr. Bedson's experience as a continuous rolling-mill man.

Cross-int. 29. Was he not instructed by you to negotiate some royalties?

Ans. Possibly in connection with one system of rolling he was to examine while he was gone.

Cross-int. 30. Did you not send instructions to Mr. Morgan through Mr. Daniels, verbal or written?

Ans. I do not remember specifically.

Cross-int. 31. Do you know by what steamer Mr. Daniels went to Europe in 1878?

Ans. I do not.

Cross-int. 32. Would you remember it, if you made a record of it?

Ans. Inasmuch as I made no record, I can't tell what the effect would have been.

Cross-int. 33. Are you sure you made no record.

Ans. I can't conceive why I should personally have made a record of so common and trivial affair.

Cross-int. 34. I only want to show that it is not possible to recollect trivial things like those you have testified to without memoranda, and that even with memoranda it would be very dangerous to be quite sure—as sure as you have been in your statements.

253 (Counsel for Morgan shows witness a letter written by himself May 15, 1878, addressed to Charles H. Morgan, London. Letter is handed to witness to read and put in evidence, being marked "Exhibit Washburn Letter, May 15, 1878, H. E. Hill, notary public.")

Ans. The witness, having carefully read the letter referred to, states that he sees nothing in it suggesting any substantial lack of accurate memory with reference to matters esteemed by him in the past as important, and has no objection to make to the last general statement of Mr. Pollok, except so far as he may have implied that the witness has failed in such regard.

CHAS. F. WASHBURN.

Deposition of Dwight A. Davis.

DWIGHT A. DAVIS, being duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded to him by Mr. Maynadier, counsel for Daniels, says:

Int. 1. What is your name, age, residence, and occupation?

Ans. Dwight A. Davis; age, thirty-four; Worcester; book-seller, stationer and blank-book manufacturer.

Int. 2. Please look at the book now shown you, and state if you ever made any books like that; and if so, can you tell when, if ever, you made a book like that for F. H. Daniels? Please give the date, and state how you know.

Ans. I made one of those books in September, 1878. It was ordered Sept. 2, 1878, and delivered Sept. 12. I made another in October, 1878. It was ordered on the 15th, and delivered on the 29th. I have here the copy, or pattern, that went into the bindery, as the order for binding. This pattern gives me a description of the book, and refers to my order book, in which the description is more complete.

Int. 3. Who ordered these two books, and who paid for them?

Ans. Mr. Daniels—Fred. H.

Int. 4. Please read the description from the pattern, and from your order book, so the magistrate can take it down.

Ans. Pattern reads: "200 pages, paged. Buff paper." Sheep back, turned edges. 4– 139.

254 Order book 4, No. 139, reads as follows:

Name.	No.	Style of binding.	Size of paper.	No. of sheets.	Paper.	Bind'g.	Total.	Price.	Del'd.
Fred. Daniels	139	Sheep back, turned edges.	Cap 14 lb. buff.	50	☐ ⊔	⌜ ⌞	⌟ ⌟	ir	Sep. 12

Int. 5. How many books like this, if any, did you make at that time?

Ans. The two referred to, and none others that I know of.

(Cross-examination waived by Mr. Pollok.)

DWIGHT A. DAVIS.

Hearing closed June 23, 1887, 4 p. m.

H. E. HILL,
Notary Public.

255 EXHIBIT LAMBERT'S TIME. H. E. Hill, N. P.

Number of Hours Geo. Lambert Worked for Washburn & Moen Manufacturing Company from January 1, 1870, to January 1, 1887.

	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
January	286	Not employed.	278	322	221	163½	197	270	270	212	270	260	296	317½	295	301	270	287
February	284½		282	152½	222	228	285	268	260	275	240	255	308	219	184	247	284	255
March	360½		276	248	260	263	293	310½	300	322	305	260	265	239	260	284	265	320
April	276½		255	253	265	265	290	277	270	285	280	286	278	244	269	306	265	294
May	300		274	238	260	180	294½	275	295	293	315	298	291½	261	274	300	250	329
June	273		250	252	252½	260	264	292	265	260	270	276	254	248½	270	287	277	
July	249½		270	295	210	265	250	272	278	307	285	303	269	111½	260	249	246	
August	291		260	275	265	293½	200	265	273	285	263	276	196	234	80	250	278	
September	294	225	230	240	203	260	260	259½	290	260	265	233	315½	251	256	317	296	
October	260	301	290	280	195	303	260	273	238	337	330	273	328	262	260	285	234	
November	255½	250	198	58	243	288	260	280	319	305	305	282	271	274	273	292	316	
December	275½	224½	250	50	220	268	250½	188½	328	365	300	305½	267	238	270	275	293	
Total h'rs p'r year	3,406	1,000½	3,113	2,663½	2,816½	3,037	3,104	3,230½	3,386	3,506	3,428	3,307½	3,339	2,899½	2,951	3,393	3,274	1,485
Av'ge days p'r mo.	28 1/6	25	26	22 2/6	23 5/6	25 3/6	25 2/6	27	28 2/6	29 2/6	28 5/6	27 5/6	27 5/6	24 2/6	24 6/6	28 3/6	27 3/6	29 1/6

256 EXHIBIT WASHBURN LETTER, MAY 15, 1878. H. E. Hill, Notary Public.

WORCESTER, *May* 15, 1878.

Mr. Charles H. Morgan, American Exchange, 449 Strand, London.

MY DEAR SIR: We write you a line by the hand of Mr. Daniels, who leaves town this afternoon in good health and spirits, to sail from New York for Liverpool at four o'clock tomorrow afternoon by the White Star steamer "Baltic," and who expects to find full instructions from you with reference to his next move, at the American Exchange, 449 Strand, London.

Our Mr. Washburn had the pleasure of seeing Mrs. Morgan and the children on their way to church Sunday morning last, and reported your good health only two hours before your sailing on Saturday, and we have no doubt but that your family are one and all in excellent health at the present moment.

Business continues at the full tide, and the prospects of a continuance are fully as flattering as when you left. We have to report that the Comer patent expires March 23, 1880, but upon examination of the Bedson patent, which expires Aug. 22, 1882, we find that this is the patent in which you are immediately interested with reference to any statement or argument you may find it necessary to make in connection with getting control of the Prussian patent, for this patent of Mr. Bedson covers all guides used in any continuous rolling, which, of course, gives us the control of that principle in this country until Aug. 22, 1882.

Now, this being the case, you will want to negotiate a little with Mr. Bedson before you "show your hand" fully, and with reference to the royalty he will demand on the product of this Prussian mill in case we get the control of it in this country. You know we now pay him $1.00 per ton on the product of his mill down to No. 8, inclusive. It will be hard if we have to pay this amount on every ton we get out of the Prussian mill to Mr. Bedson, therefore you will please make the best terms you can with him. You certainly should not be obliged to pay him more than one-half dollar per ton to the owner of the Prussian mill, and Mr. Bedson will not have the heart to ask more than that amount, which would make one dollar in all. You of course will do as much better than that as you can.

257 We state further, for your information, that we have paid Mr. Bedson royalties for 6,750 tons of rods turned out of his mill for the calendar year ending April 1 last.

We have reminded Mr. Daniels that it is important that you keep your mutual eyes wide upon everything relating to telegraph wire, its conductivity and the appliances for testing the same, especially the conditions requisite for obtaining the highest possible degree of conductivity in iron wire, and the all-important question as to whether the Bessemer steel could be made of as high conductivity as pure iron, etc., etc.

Upon further comparison of the Bedson and Comer patents, we

are satisfied that Comer's patent covers the principle of the guide between the rolls when iron or steel is rolled continuously, and that Mr. Bedson covers the principle of guides having openings in them to allow the scale to escape while the iron or steel is passing through the guides.

If you do not need the Bedson guide in running the Prussian mill, you of course will have no right to name the term of four years in your agreement with the Prussian as the time for which we could control the use of his machine in the United States.

Further, if this last is the case, you will not need to stipulate with reference to royalty with Mr. Bedson. If, however, the Bedson guide is essential to the Prussian mill, the theory we have already advanced early in this letter is entirely correct.

Wishing you health, good spirits and success, we remain, yours very truly,

WASHBURN & MOEN MANUF. CO.
CHAS. F. WASHBURN, *Vice-president.*

WORCESTER, MASS., *Jan.* 5, 1888.

In the Matter of the Interference between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN for Mechanism for Coiling Wire Rods, now Pending before the Commissioner of Patents.

Anthony Pollok, Esq., attorney for Chas. H. Morgan.

SIR: You are hereby notified that on Tuesday, Jan. 10, 1888, at twelve o'clock, noon, at the office of the Washburn & Moen
258 Manufacturing Company, No. 94 Grove street, Worcester, Mass., before Henry Eveleth Hill, notary public, or other competent magistrate, I shall proceed to take the testimony of Addison B. Clemence, James Forsstedt, Horace A. Young, Fred. H. Daniels, all of Worcester, Mass., and others, as witnesses on behalf of said Fred. H. Daniels. (In rebuttal.)

The examination will continue from day to day until completed. You are invited to attend and cross-examine.

Respectfully, FRED. H. DANIELS,
By his attorney, CHAS. H. BURLEIGH.

Service accepted this ninth day of January, 1888.

A. POLLOK,
P. M.,
Attorney for Morgan.

Before the Commissioner of Patents.

In the Matter of the Interference between the Application of FRED. H. DANIELS and the Application of CHARLES H. MORGAN for Mechanism for Coiling Wire Rods, now Pending before the Commissioner of Patents.

Depositions of witnesses examined on behalf of Fred. H. Daniels, pursuant to the annexed notice, at the office of Washburn & Moen Manufacturing Company, 94 Grove street, Worcester, Mass., before Henry Eveleth Hill, notary public, on Tuesday, the tenth day of January, A. D. 1888.

Present: James E. Maynadier, Esq., on behalf of Fred. H. Daniels; Philip Mauro, Esq., on behalf of Charles H. Morgan.

Deposition of Horace A. Young.

HORACE A. YOUNG, having been duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories by Mr. Maynadier, counsel for Daniels, says:

Int. 1. What is your name, and have you before testified in this suit?

Ans. Horace A. Young; I have testified before in this suit.

Int. 2. Please read Int. 10 in Mr. Angstrom's deposition,
259 and state the order of the tests according to your recollection, and according to the records of the Washburn & Moen Manufacturing Company, and in particular whether Mr. Angstrom is right or not when he says: "The test took place in old continuous mill."

Ans. My remembrance is that the first automatic reel test that took place was made in the so-called "No. 2 continuous mill," and that the second tests were made in the so-called "Belgian mill," and that any and all other tests were made in the Belgian and so-called "No. 2 continuous mill," up to the time of the successful working of the automatic reels; and I do not remember of any experiments being made with the automatic reel in the old No. 1 continuous mill. The only records I know of are the drawings, and I have answered in conformity with these records.

Int. 3. Do you find anything in connection with drawing marked "Exhibit First Test No. 3," or with any of the drawings which go with that drawing, which shows you that Mr. Angstrom had anything to do with making the drawings for that test? If so, state what it is.

Ans. I do find in the exhibit work performed by Mr. Angstrom. The apparatus for removing the wire from the reel is Mr. Angstrom's work. It consists of a cylinder and its connecting apparatus for lifting a rail or beam on which the tongs are suspended. That is all, I think. His initials are on the drawing, in his own handwriting, and the date.

(The drawing is here exhibited to Mr. Morgan and his counsel, and the magistrate, at request of counsel for Daniels, copies the writing on the drawing, and certifies that the following is a correct copy:—)

"*Details of Hydraulic Lift for Automatic Reel.*

Continuous mill No. 2.

C. A.——m. Mar. 18th, 1879."

H. E. Hill.

Int. 4. Mr. Angstrom uses two expressions: one, "old continuous mill," in his tenth answer, and the other, "new continuous mill" in his eleventh answer: what mills does he refer to, as you understand it?

Ans. What is known as "No. 1" and "No. 2 continuous mills."

Int. 5. Mr. Angstrom in his eleventh answer speaks of a
260 patent "by R. Daelen, of Dusseldorf, on a tub reel;" have you examined that patent, and are you familiar with it?

(A copy of that patent, being English patent No. 4897, Nov. 30, 1878, rolls for rolling wire, to Frank Wirth, a communication from Reiner Daelen, of Dusseldorf, is now put in evidence, and marked "Exhibit Daelen Patent.")

Ans. Yes, sir.

Int. 6. State whether the reel described in that patent is a tub reel, or a platform reel without spokes, the platform being surrounded with a non-revolving curb, and also state whether that reel will work or not, giving your reasons.

Ans. It is a platform reel without spokes, with a stationary rim or curb, and revolving plate or table, in which condition I do not think it is practical. From the patent I infer that the table is smooth, and that the wire coming from the mill would strike against the rim, and be deflected onto the table, and the table being smooth it would not carry the wire around with it, and that the result would be, in rolling-mill parlance, a cobble. A cobble is generally understood as a snarl or a tangle of the rod, which makes it necessary to throw the rod in the waste pile.

Int. 7. Please read Mr. Angstrom's Int. 14 and answer, and state what, if anything, you know which justifies Mr. Angstrom in having such a belief; also what your belief was.

(Counsel for Morgan objects to the last clause of the interrogatory as not in rebuttal.)

Ans. I haven't an idea in reference to that. I hadn't at that time any means of forming an opinion. I was not at that time particularly in the confidence of Mr. Daniels or Mr. Morgan regarding these matters.

Int. 8. Please read Int. 9 and answer of Mr. Angstrom, and examine the drawing referred to in it, Exhibit Angstrom's Sketch. State when you first saw that drawing.

Ans. I have no remembrance of seeing this drawing until within the last fortnight.

(Cross-examination waived.)

HORACE A. YOUNG.

261 FRED. H. DANIELS, having been duly sworn to testify the truth, the whole truth, and nothing but the truth, in answer to interrogatories propounded by Mr. Maynadier, doth depose and say:

Int. 1. What is your name, and have you before testified in this case?

Ans. Fred. Harris Daniels. I have.

Int. 2. Please read Mr. Angstrom's Int. 10 and answer, and state the order of the tests, and where made, not only from your recollection, but from the records of the Washburn & Moen Manufacturing Company.

Ans. Mr. Angstrom is mistaken regarding this matter, for their never was a test of any automatic reel made in the old continuous mill during the whole period Mr. Angstrom was employed by the Washington & Moen Manufacturing Company, or before that date as far back as 1873. The order of tests which were made during the period of time referred to in 1879 is as follows:

First test made in the No. 2 continuous mill, also called new continuous mill.

Second test in Belgian rolling mill.

Third test in No. 2 continuous mill.

The records in the draughting-room, and also drawings which have been put in as exhibits, show this statement to be true.

Int. 3. What, if anything, did Angstrom have to do personally with first test in spring of 1879 in the new continuous mill? and produce, for inspection of Mr. Morgan and his counsel, any drawings which relate thereto, and which tend to show Angstrom's personal connection with the test.

Ans. Mr. Angstrom assisted me in making the working drawings from which the pair of reels were constructed for this test by making the detail drawings which I now present. These drawings are entitled:

"Details of hydraulic lift for automatic reel, continuous mill No. 2, C. A——m, March 18, 1879," and

"Details of automatic reel, continuous mill No. 2, finished size, C. A——m, 21*th* of March 1879."

The first of these drawings illustrates the hydraulic apparatus which was used in the first test for elevating and depressing
262 the overhead track which supported Mr. Morgan's expanding tongs or grapple, used in this first test for removing the coil of wire rod. The second drawing illustrates the switch, which was used in the first test for alternately directing the finished wire rod to the pair of reels. I find by referring to Exhibit First Test No. 3 on the lower right-hand corner a plan view of the hydraulic elevating mechanism, and the dimensions shown

in this sketch correspond with those on the detail drawing made by Mr. Angstrom.

Int. 4. In whose handwriting are the letters and figures "C. A——m, March 18, 1879," and "C. A——m, 21*th* of March, 1879"?

Ans. Mr. Angstrom's.

Int. 5. Are you familiar with the Daelen patent, referred to by Mr. Angstrom in his eleventh answer? If so, state whether the reel described in that answer is a tub reel or not, and also whether that reel would work or not, giving your reasons.

Ans. I am. The reel they illustrated and described in the Daelen patent is not a tub reel. The reel is not practical and would not work in practice under any conditions if built according to the drawing and description. The reel is composed of a platform fastened to the upper end of a vertical shaft. The shaft is caused to revolve, the platform revolving with it because it is fastened to the shaft. The top surface of the platform is smooth, without any upward projections whatever. Surrounding this revolvable platform is a rim, which is constructed and described as non-revolvable. The only motion that the rim can have is to be raised and lowered by means of a lever attached thereto. It would be impossible to form a coil in a reel of this description with any degree of success whatever. The wire rod when delivered into a reel of this kind, on account of the stiffness of the wire, would tend to pass forward in a straight line. On account of this tendency, the result of directing a wire by means of a guide-pipe into a space formed by a stationary cylindrical rim and a revolving platform would be for the wire to strike the inner surface of the stationary rim and form itself in a partial coil or ring against the stationary rim, which would act against the further advancement of the ring of wire rod and prevent the formation of complete coils. If a ring or a portion of the rod should fall upon the revolving platform the centrifugal
263 force would cause the wire to be pressed against the inner surface of the stationary rim, which would act as brake, and prevent the formation of coils. The probabilities are that after several tangled masses are formed in the receptacle the rod would jump over the stationary rim and be distributed over the floor of the mill.

Int. 6. In Angstrom's ninth answer he says, in substance, that in November, 1878, Mr. Morgan, with your assistance, was trying to invent a good reel, and that the chief difficulty then was in devising some contrivance that would seize the first end of the hot-wire rod as it left the guide tube of the last pair of rolls, and that for that reason he (Angstrom) devised a plan of gripping the first end of the hot-wire rod between two plates, as shown in his drawing Exhibit Angstrom's Sketch. Please explain how far he is correct, or incorrect, as to Mr. Morgan having been occupied, in November, 1878, or about that time, in regard to some seizing device for seizing the first end of the hot-wire rod.

Ans. The plan which Mr. Morgan thought most favorably of for automatically coiling the wire rod, at the time mentioned, and upon

which he spent a larger portion of his time, was a reel revolvable on a vertical axis, and designed to catch or grip the first end of a wire rod immediately after being delivered through a guide pipe from the finishing pair of rolls of the rolling mill. This gripping device was known as the automatic hand, and is illustrated in the first patent which Mr. Morgan applied for upon automatic reels, patent No. 220,300, United States, appearing as an exhibit in this case. At that time, Nov. 5, or about that date, Mr. Morgan, as well as Mr. Angstrom, was of the opinion that the tub reel would not work successfully, and they were therefore endeavoring to devise some gripping device. Mr. Morgan and myself later on also applied for some patents in this direction, which, no doubt Mr. Angstrom refers to in his answer when he says, Mr. Morgan, with the assistance of Mr. Daniels, was trying to invent a good reel. I did not see the necessity for the gripping device, for I thoroughly believed from the start, when I first suggested the tub reel, that it would operate successfully.

Int. 7. Please read Mr. Angstrom's twelfth interrogatory and answer, and say what you think should be said about it.

264 Ans. Mr. Angstrom has evidently forgotten the conversation which took place between us regarding the tub reel having a discharging platform, on or about Nov. 5, 1878, or else he has in mind the plan which Mr. Morgan proposed, and was working upon at that time, for gripping the first end of the wire rod by means of the automatic hand, and removing the coil by means of the expanding tongs and grapple; and it is evident Mr. Angstrom has this invention in mind.

Int. 8. Please read Ints. 13 and 14 to Angstrom, and his answers, and state what Angstrom's position was the latter part of 1878, and what his opportunities were, or what reasons, if any, he had for forming the belief there referred to. Also what knowledge Angstrom had of English, and what you knew of him before he came to the employ of the Washburn & Moen Manufacturing Company.

Ans. During the period named, Mr. Angstrom was a draughtsman in the employ of the Washburn & Moen Manufacturing Company, and on account of the draughting-room being crowded, he was at work making drawings in a room by himself, where he received instruction regarding the work he was to perform both by Mr. Morgan and myself. I had the entire charge of the draughting-room at that time, and most of the instructions to Mr. Angstrom were given by myself. Mr. Angstrom's duties were such that he attended strictly to his own affairs, and at the time named it would have been impossible for him, under these circumstances, to have come to any correct belief as to who was the inventor or as to who was not; for the question as to who invented an automatic tub reel with a discharging platform had never been raised or discussed during Mr. Angstrom's employment by the Washburn & Moen Manufacturing Company. Also, I invented the discharging platform in combination with an automatic reel some weeks before Mr. Angstrom entered the employ of the Washburn & Moen Manufacturing Company, and it would have been impossible for him to

have come to any belief whatever in the matter. Mr. Angstrom, having entered the employ of the company Aug. 2, 1878, remaining only a short time, was taken sick, and the period he actually worked for the company, between Aug. 2 and Nov. 5, was so short, coupled with his imperfect knowledge of the English lan-
265 guage, he could not have known what was transpiring between other persons in the employ of the company. I did not know Mr. Angstrom before he commenced work for the Washburn & Moen Manufacturing Company.

Int. 9. Please make such comments as you think necessary on Int. 15 and answer, Angstrom's deposition.

Ans. This statement by Mr. Angstrom is not true. I never received instructions from Mr. Morgan to order the two sketch books referred to in this answer. I had been in the habit of making sketches on loose pieces of paper, and as many new ideas were occurring to me from time to time, I thought it would be desirable to have these books in which to record my ideas. In two or three instances sketches appear illustrating the invention of other parties; but in such cases they were put in by request, in order that the record of the invention might be preserved. If I had received orders to procure such books for Mr. Morgan or the company, I should not have had them charged to myself or paid for them with my own funds. The books of Putnam & Davis speak for themselves regarding this point. It was the universal custom at that time for the company to buy their books and stationery of Messrs. Putnam & Davis, and having them charged; and, being authorized to purchase supplies of this kind for my department, I was in the habit of buying at Messrs. Putnam & Davis', and invariably had them charged to the Washburn & Moen Manufacturing Company. I have examined the bills sent this company by Putnam & Davis for the years 1878, 1879 and 1880, and find that opposite all charges which represent purchases made by myself they have put down my name as having ordered these supplies, in order that I could audit the accounts before payments were made. I have with me the bills covering the period named, and they are open to inspection.

Int. 10. Please produce the letter referred to in Angstrom's cross-int. 14 and answer.

(Witness produces same, and it is marked "Exhibit Angstrom's Letter, March 23, 1887, H. E. Hill, N. P.")

Int. 11. Please refer to the answer of Int. 11 of Angstrom, in which Mr. Angstrom insinuates that as late as 1880 you were mak-
266 ing drawings for an experimental reel, and that he aided you in that matter by referring you to the Daelen patent, and state whether any drawings were ever made having anything whatever to do with the platform reel in controversy after you had knowledge or any information as to the Daelen patent.

Ans. I never had any information from Mr. Angstrom which in any way assisted me in preparing the drawings illustrating the reels in controversy. In fact, I do not remember that Mr. Angstrom ever described to me the Daelen patent. The first remembrance I have

of hearing of a patent to Daelen was in the spring of 1885, when Mr. Forsstedt, of our office, showed me a sketch and short description of the Daelen reel. Mr. Angstrom, without doubt, refers to another invention which he spoke to me about, and which I afterwards examined carefully at the Astor Library in New York city. My memory is assisted in this matter by a press copy of the description, which I obtained at that time, and which I have found in my copy-book.

Int. 12. In Angstrom's answer to cross-int. 7 he describes three tests, in order. In the second one, he says in substance that the coil was discharged by means of a platform moved by a hand lever or treadle; while in the third, hydraulic cylinders were used in place of the hand lever; can you suggest how this idea of the hand lever or treadle as a means of moving the lifting platform got into his mind, or how this particular order, viz., first, hand lever or treadle, next, hydraulic cylinder, got into his mind?

Ans. From the fact that the Washburn & Moen Manufacturing Company never had drawings made or a reel constructed in which the platform was operated by means of a hand lever or treadle, and as far as I know, no discussion regarding this method of operating the platform by means of a hand lever took place, excepting one which I had with Mr. Angstrom on or about Nov. 5, 1878, at which time I described to Mr. Angstrom an automatic reel having a discharging platform, the platform being operated by a treadle, and further showed him, as illustrated by Exhibit Daniels Sketch, how a hydraulic cylinder could be made to operate for raising a platform through a lever or treadle, and also described to him the further application of another form of hydraulic power. He must
267 have obtained his information in reply to cross-int. 7 from the conversation we had about Nov. 5.

(Objected to as argumentative, and further as being in the nature of surrebuttal, relating, as it does, to matters in regard to which this witness has already been examined.)

Cross-examination.

(By P. Maure, Esq.:)

Cross-int. 12½. Mr. Angstrom was in his position in draughting-room during the time the working drawings of reel in controversy were being prepared, was he not? and was in position to hear the discussion that took place there regarding these drawings?

Ans. He was. If any discussions took place of such a nature and in such a way he could have heard them at the table where he was at work.

Cross-int. 13. He was also present, was he not, during the construction and tests of the reels in controversy in 1879?

Ans. He was employed in the draughting-room during that period, but as to his being present during the construction of the reels, or being present in the rolling mills while they were tested, I am unable to state definitely.

Cross-int. 14. I understood that you were in the habit of convey-

ing instructions to Mr. Angstrom, and at times of holding discussions with him regarding the work in hand, and other matters, in 1878 and following years: is that correct?

Ans. I remember having had discussions with him regarding mechanical devices, and I certainly gave him instructions regarding his work and duties in the draughting-room.

Cross-int. 15. In what language were these discussions carried on?

Ans. Mostly in English. I had just returned from a five months' stay in Sweden, and if necessary could have made myself fairly understood in Swedish.

Cross-int. 16. Mr. Angstrom, however, was able to comprehend your instructions when conveyed in English, was he not?

Ans. I do not recollect that I had any difficulty in making myself understood, especially when aided by drawings and sketches.

Cross-int. 17. Do you know whether Angstrom studied
268 English before he came to this country?

Ans. I knew nothing whatever of Mr. Angstrom previous to his entering the employ of Washburn & Moen Manufacturing Company.

Cross-int. 18. Do you know how long Mr. Angstrom had been in this country previous to his entering their employ?

Ans. I have no absolute knowledge regarding this other than what I have obtained from his deposition.

Cross-int. 19. In writing to Mr. Angstrom the letter printed in page — of your record, did you not write, and expect him to give his testimony on your behalf, to the effect that the reel in controversy was your own invention, and communicated to him as such?

Ans. No, sir. I did not expect that he could state positively that I did invent the reel in controversy, for that invention was made some time before I knew him. I simply asked him regarding what he remembered of certain descriptions I made to him.

Cross-int. 20. You do not claim then, that in any discussion with Mr. Angstrom regarding this invention you informed him that it was your own invention?

Ans. I do not remember that at that time, Nov. 5, 1878, the question was ever raised as to who invented reels illustrated by certain sketches which I exhibited to Mr. Angstrom. I had great confidence in my associates at that time, and expected that my rights would be respected in all such matters.

(All that part of answer after first sentence of said answer objected to by counsel for Morgan as irresponsive.)

Cross-int. 21. In your said letter reference is made to certain sketches. Did not these sketches show in order, first, a reel in which the lifting platform was operated by a lever or treadle; second, a reel in which the platform was raised by a hydraulic cylinder?

Ans. Yes, I think they did.

Cross-int. 22. Has any further correspondence taken place be-

tween yourself and Mr. Angstrom in relation to this interference since your said letter and his reply of March 23, 1887?

Ans. Yes; I replied to his communication.

Cross-int. 23. Was that all the correspondence between you?

269 Ans. It was not. I remember of writing him still another letter, which I believe comprises all the correspondence we have had.

Cross-int. 24. Have you copies of these letters, and if so will you produce the same?

Ans. I am unable to do so.

Cross-int. 25. Why?

Ans. Copies were not preserved.

Cross-int. 26. You took copies at the time they were written, did you not?

Ans. I do not remember that I did.

Cross-int. 27. Do you mean to say that you did not keep copies at the time?

Ans. I cannot state positively whether I did or did not.

Cross-int. 28. It is your practice, I believe, to preserve copies of your business letters, is it not?

Ans. All business letters relating to Washburn & Moen Manufacturing Company's business are copied, but I do not make it a practice to copy friendly letters between those of my acquaintances with whom I may have occasion to correspond. I would say, however, that I know of nothing in this correspondence I should not be willing to exhibit if it were possible for me to do so.

(Counsel for Morgan objects to last sentence as irresponsive and volunteered.)

Cross-int. 29. When you preserve copies of letters, are they kept in a book?

Ans. Not entirely. Sometimes they are copied in a book, and sometimes on sheets of copying paper.

Cross-int. 30. Have you recently destroyed any copies of letters you had taken?

Ans. No, sir; I have not.

Cross-int. 31. Then if you do not know whether or not you took copies of these letters at the time they were written, how do you know copies of them were not preserved?

Ans. Because I have had occasion to look through my papers regarding this correspondence which you have referred to and I was unable to find copies of letters to Angstrom.

Cross-int. 32. Have you preserved the replies Mr. Angstrom made to such letters, and if so, will you produce them?

270 Ans. They have all been produced. I have only received one reply.

Direct examination resumed:

Int. 33. What was the substance of the two letters you wrote to Angstrom after the one printed on page — of your record?

Ans. The second one was a duplicate of the one which has ap-

peared. Not hearing from Mr. Angstrom in reply to my first communication, I sent him a copy of the first letter, requesting him to reply. The third letter was thanking him for the statement which he sent me.

FRED. H. DANIELS.

EXHIBIT ANGSTROM'S LETTER. March 23, '87. H. E. Hill, Notary Public.

Domarfvets Jernwerk, Post-och Telegrafadress, Domnarfvet.

MARCH 23, 1887.

F. H. Daniels, Esq., Worcester, Mass.

DEAR FRED.: You letter at hand and contans noted. Regarding the "tub reel," I am sorry not being able to assist you. I have looked through my notes from that period you mention in y-r letter but I am not able to find anything of importance relating to the subject. I remember quite distinctly that we have had many talks on the subject, but I am not now able to fix the time or data. The question beeing of minor importance to me at that time, I suppose I must have forgotten to write down anything relating to it, or else my notes have been mislade in some way or other. Do you not find anything in the office record book of that time? I understood from your letter you intend visiting Sweden this summer, if so I hope you will remember me. I blive you will find many thing here that may interest you. We have started a railmaking plant, making rails fr the Swedish Government. Part of this plant consists of a large blooming mill for 14″ ingots, making billets 3″ sq. The tables Shers & cranes worked by hydraulic pressure 750 lbs. per □ in. So far we have been able to make 700 tons a week, but we expect to do better when we get enough furnace capacity.

271 Please remember me to Mr. Morgan; tell him I have received his kind letter quite a while ago. I will soon write to him, and give him an account of what we been doing here lately. Also remember me to Mr. Young and the rest of my Worcester friends.

Yours faithfully, CARL ANGSTROM.

STATE OF MASSACHUSETTS, }
County of Worcester, } ss:

I, Henry Eveleth Hill, a notary public within and for the county of Worcester, and Commonwealth of Massachusetts, do hereby certify that the foregoing depositions of Horace A. Young and Fred. H. Daniels were taken on behalf of Fred. H. Daniels, in pursuance of the notice hereto annexed, before me, at the office of Washburn & Moen Manufacturing Company, 94 Grove street, Worcester, Mass., on the tenth day of January, 1888, that said witnesses were by me duly sworn before the commencement of their testimony; that the testimony of each of said witnesses was written out by myself; that the opposing party, Charles H. Morgan, was present personally

and by counsel during the taking of said testimony; that said testimony was taken at the time and place above named, and was commenced at ten o'clock in the forenoon on the tenth day of January aforesaid, and was continued pursuant to the adjournment therein named, and was concluded at 4.30 p. m. on said day; and that I am not connected by blood or marriage with either of said parties, or interested directly or indirectly in the matter in controversy.

In testimony whereof I have hereunto set my hand and affixed my seal of office in Worcester, in said county of Worcester, this tenth day of January, 1888.

[SEAL.] HENRY EVELETH HILL,
Notary Public.

272 EXHIBIT DANIELS FILE-WRAPPER AND CONTENTS.

(2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper contents and drawing, in the matter of the application of Fred. H. Daniels, filed June 26, 1886, serial number 206,323 for improvement in mechanism for coiling wire rods.

In testimony whereof, I, C. E. Mitchell, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 10th day of July, in the year of our Lord one thousand eight hundred and eighty-nine, and of the Independence of the United States the one hundred and fourteenth.

[SEAL.] C. E. MITCHELL,
Commissioner.

APPLICATION FOR LETTERS PATENT OF THE UNITED STATES OF AMERICA.

Petition.

To the Commissioner of Patents:

Your petitioner, Fred. H. Daniels, a citizen of the United States, residing at Worcester in the county of Worcester and State of Massachusetts; prays that letters patent may be granted to him for the invention and improvements in mechanism for coiling hot wire rods set forth in the accompanying specification; and he hereby constitutes and appoints Charles H. Burleigh of Worcester, Mass., attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent when granted and to transact all business in the Patent Office connected therewith.

FRED. H. DANIELS.

273 *Specification.*

To all whom it may concern:

Be it known, that I, Fred. H. Daniels a citizen of the United States, residing at Worcester in the county of Worcester and State of Massachusetts, have invented certain new and useful improvements in mechanism for coiling wire rods of which the following, together with the accompanying drawings, is a specification, sufficiently full, clear and exact to enable persons, skilled in the art to which this invention appertains, to make and use the same.

The object of my present invention is to provide an efficient and practical mechanism for reeling or coiling hot wire rods as they come from the rolling mill; and to afford facilities for directing the rods either onto the reel or so as to run out upon the table or floor. Also to provide a shield, guard, or cover to contain the reel mechanism and prevent accidents from the swinging end of the rod, in case the same is not fully reeled into the coil. Also, to provide an efficient mechanism for throwing the reels into and out of action by aid of hydraulic or pneumatic pressure; and facilities for discharging the coils of wire rod from the reels.

These objects I attain by mechanism, the nature, construction and operation of which is explained in the following description, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings,

Fig. 1 is a plan view of rod-reeling mechanism illustrating features of my invention.

Fig. 2 is a front view of the same.

Fig. 3 is a vertical section through the reels, drawn to a somewhat larger scale.

In referring to parts of the mechanism, A denotes a frame table or case having openings in its top, within which the reels or rod-coiling receptacles B B are located, and being arranged in a pit, space or chamber beneath said table and fully enclosed thereby, the top area only of the reels being exposed, and the top line of the reel being level, or nearly so with the surface of the table or plat-
274 form. At the back of the reels, a depressed space or trough a is formed along the table, which trough is preferably somewhat inclined downwards towards its exit end a^1 which opens above a receiving floor or platform whereon the rods can be distributed when desired.

The rod receptacles of the reels B are formed as rotatable tubs, or with [a]* cylindrical rim (s)† B^1 extending upward from their bottom plate (s)†, and at intervals along the inner surface of said rims B^1, vertical inwardly projecting flanges or ribs b are arranged thereon, the upper part of the ribs extending inward farther than the lower part as indicated.

A series of upright pins or fingers $b(^2)$‡ form the centre of the

* Letter in brackets erased by red-ink line.
† Letters and words in parenthesis inserted in red ink.
‡ Figure in parenthesis inserted in red ink.

reel, which fingers preferably incline outward at their tops. The rod is coiled in the space between the fingers b^2 and ribs b, and the downward spread of the ribs and fingers permits the coils of rod to drop in the space instead of being held near the top, thus insuring the complete filling of the reel space before the rod runs over the top.

C indicates a spider or radially armed lifting plate arranged within the reeling receptacle with its arms extending across the space between the fingers b^2 and ribs b and upon which the coiled rod R is supported.

The rod receptacles are mounted on upright, hollow shafts D which are supported to revolve in bearings c c on suitable frames or standards E, and said shafts are respectively provided with a disk or friction clutch-wheel D^1 having upper and lower inclined frictional surfaces d d^1.

The upper bearing c carries a fixed friction rim H to match the upper surface d of the wheel D^1; and arranged in the under bearing c^1 is a sleeve G^1 which supports a gear G having formed on or connected therewith a friction rim which matches the lower surface d^1 of the wheel D^1. The shafts D are longitudinally movable in their bearings, and beneath their lower ends I arrange lifting and depressing mechanism whereby the shafts, rod receptacles and disks D^1 can be raised and depressed so as to bring either the upper or lower friction surfaces d or d^1 into acting contact with its corresponding rim.

When depressed, as at the left (in)* Fig. 3, the friction (a^1)† contact with the gear G imparts rotary movement to the reel or receptacle B; and when elevated as at the right in Fig. 3, the friction (a^1)† contact with the stationary rim H stops the rotation and holds the reel or receptacle at (a)† fixed position.

The spider or lifting plate C is fixed on the end of a shaft or spindle C^1, disposed within the hollow shaft D in the manner indicated.

Beneath the foot of the shafts D and C^1 I arrange a compound or telescoping lifting apparatus operated by hydraulic, steam or pneumatic pressure, and consisting of a cylinder J containing a piston or hollow plunger K that extends up to and acts against the foot of the shaft D; and within said plunger is arranged a secondary or smaller piston or plunger I, that extends up to and acts against the shaft C^1, the primary or outer plunger serving as a cylinder for the secondary piston, opening at its lower end into the main cylinder so that the pressure exerted therein will act on both.

The inner plunger is provided with a recess or lug, as at i, to engage with the end of a latch or locking lever L, whereby said plunger can be retained at its lower position. Said latch lever is fulcrumed on the outer plunger, as at k with its lower end l passing through an opening in the side, and its outer arm connected by rod r with a treadle M or other suitable operating mechanism, whereby

*Word "on" erased, and word "in" inserted with red ink.
†Letters and figures in parenthesis inserted in red ink.

the attendant can release the catch L when desired. The lug *i* is bevelled at its lower side or so formed that in the downward movement of the plunger I the catch-lever will automatically pass over the lug.

A shoulder or stop is provided on the interior of the hollow plunger as at *s* to limit the upward movement of the plunger I and lifting plate C.

Suitable pipes *u* with valve mechanism N are provided for supplying the cylinders with water for exerting hydraulic pressure, said valves being fitted with operating handles *m* at convenient positions.

The mechanism is driven by gears g^1 on shaft G^2 which is provided with suitable driving pulleys, or other means for transmitting motion thereto, from any suitable motor.

The rods are delivered to the reels through guide-pipes P located above the trough *a*, which pipes are jointed and hinged in such manner that their delivery ends can be swung into line either with the coiling receptacles or with the trough *a* (see Fig. 11), so as to deliver the rod(s)* into said receptacles or so they [it]† will run out upon the floor at the end a^1 of the trough.

Handles *p*, or other suitable means are provided for moving the ends of the guide-pipes as required.

The rod is introduced into the guide-pipes direct from the rolling mill (not shown); a switch 5 being employed when desired, to cause alternate rods to pass to the right or left reels.

A covering or enclosing casing T is arranged to enclose the ends of the guide-pipes and space above the reels, in the manner illustrated, so that there will be no danger from the swinging of a loose end or loop of rod which, from any reason, may accidentally get loose, or is not closely coiled into the receptacles.

Said cover T is provided with openings or doors O, through which to take out the coils of rod, and it is suspended from above by means of chains *t*, or other means, so that it can be raised up at any time to allow access to the mechanism beneath it.

Guides T^1 are provided in connection with the cover, to prevent its swinging out of place, as it is hoisted up and down by means of the chains *t* or lifting apparatus. Said guides preferably consist of rods, channel bars or angle bars fixed in upright position in connection with the table A, with lugs on the cover T which engage with the said channel of the bar, and retain the cover in proper relation and alignment as it moves up and down to and from the table or its supporting platform A.

The operation of my invention is as follows:

277 The pressure in the cylinder K being relieved, the plungers descend by weight of the superimposed mechanism, allowing the friction disk or wheel D^1 to rest in contact with the gear G, as indicated at the left in Fig. 3.

The gear being in motion imparts rotary action to the coil re-

*Letter in parenthesis inserted with red ink.
†Word in brackets erased, and "they" inserted in red ink.

ceiver B, and the rod being led to said receiver through the pipe P is coiled in the annular space between the ribs *b* and fingers b^2, the coil resting upon the arms of the spider plate C.

When the coil is formed, the attendant opens the valve letting the hydraulic pressure into the cylinder J which lifts the plunger[s]* K, thereby elevating the shaft D and forming the disk or friction wheel away from the gear G, and into contact with the stationary rim H as indicated at the right of Fig. 3, thus stopping the rotation of the receptacle.

The pipe P is, in the meantime, swung back into line with the trough. The attendant then, by placing his foot in the treadle, releases the catch (*l*)† from the secondary plungers I, and the pressure acting on said plunger forces up the spider frame C, raising the coil of wire to a position above the fingers b^2, (see right-hand mechanism in Fig. 3) so that it can be conveniently removed through the opening O. The pressure is then permitted to escape from the cylinder J, the spider plate and receptacle descend to their former position. The operation is alternately repeated, one receptacle being unloaded while the other is being filled.

In case of any accident or derangement of the mechanism during the coiling of the rod, the pipe P can be shifted or swung back over the trough, *a* so that the balance of the rod, instead of being tangled up in the reeling mechanism, is directed out upon the receiving floor, and the wasting of the rods is thus avoided.

In lieu of making the cover or hood T for the reels with doors or openings O for discharging the rod, the cover may be made in two parts, or as a hood for each of the coiling receptacles independently, and be arranged to be raised by the chain *t*, or otherwise lifted from the platform to give access to the coiling receptacle and permit the convenient discharge of the wire rod.

278 Such single covers I have indicated by dotted lines in Fig. 1; these covers may be provided with a slot or opening, in case it is not desired to extend them over the trough *a* to permit the end of the guide-pipe to swing to and from the reel.

What I claim as of my invention, and desire to secure by letters patent, is

[1. The table or platform A provided with the depression or trough *a*, in combination with a rod-coiling mechanism, and delivering guides, substantially as set forth.]‡

[2. The combination, with a revolvable rod-coiling receptacle, of a swinging guide, adapted for delivering the rod into said receptacle, or for directing it past the receptacle, according as said guide is adjusted, substantially as and for the purpose hereinbefore set forth.]§

---

* Letter in brackets erased with red ink.

† Letter in parenthesis inserted in red ink and letter L erased with red ink.

‡ Matter in brackets erased and "Canceled Mar. 30, 1887," written in red ink in the margin.

§ Matter in brackets erased and "Substitute A, Aug. 28, 1886," written in red ink in the margin.

[3. The combination with the rim of]* a rod-coiling receptacle, or tub reel, [having, upon the inner side of its peripheral rim]† a series of inwardly-projecting upright [flanges]‡ as *b*, the inner edges of which are upwardly, and inwardly inclined, substantially as and for the purpose set forth.

[4. In a rod-coiling receptacle, an outer cylindrical rim having on its inner side a series of upwardly inwardly inclined ribs, in combination with an inner circle composed of a series of upwardly and outwardly inclined pins or fingers, substantially as and for the purpose set forth.] §

[5.]‖ The combination, with a rod-coiling receptacle having a cylindrical rim provided with a series of upright [ribs],¶ and an inner series of pins or fingers, of a spider or plate having a series of radial arms extending across the space between said fingers
279 and the outer rim flanges, for supporting the coils of wire rod, substantially as set forth.

[6. The combination, of a rod-coiling receptacle, mounted on a revolvable shaft, of the friction disk or wheel D^1, the stationary friction rim H, the revolvable friction rim and gear G, and mechanism for raising and depressing the wheel shaft, whereby the friction wheel is brought into contact either with the friction rim of the gear G, or with the stationary friction rim H, substantially as and for the purpose set forth.]**

7. [5.]†† The combination, with a rod-coiling receptacle or reel, of a spider or lifting plate mounted on a central shaft which is supported and reciprocatively movable within the reel-supporting shaft and provided with means for elevating said central shaft and plate, substantially as and for the purpose set forth.

8. [6.]‡‡ The combination, with a rod-coiling receptacle or reel, having a hollow supporting shaft carrying a frictional actuating wheel, and a lifting spider or plate having a shaft extending through and reciprocatively movable within said hollow reel-supporting shaft, of a pressure cylinder containing a hollow primary piston or plunger, acting against said reel-supporting shaft, and a secondary piston or plunger acting against the shaft of said spider or plate, for the purposes set forth.

9. [7.]§§ The combination, with a reel or coiling receptacle, and

* Matter in brackets erased and A^1 inserted with red ink, and "Aug. 28, 1886," written in red ink in the margin.

† Matter in brackets inserted in red ink, and "of" erased.

‡ Word erased and "ribs" inserted in black lead pencil.

§ Matter in brackets erased and "Substitute A^1 Aug. 28, 1886," written in red ink in the margin.

‖ Figure erased and "3" inserted with red ink.

¶ "Flanges" erased with lead pencil and "ribs" inserted.

** Matter in brackets erased and "Substitute A^2, Aug. 28, 1886," written in red ink in the margin.

†† Figure "7" erased, figure "5" inserted with red ink, and on the margin was written in blue pencil marks, "This claim 5 (originally 7th) covers the interfering matter. See amendment of March 30, 1887."

‡‡ Figure "8" erased and figure "6" inserted with red ink.

§§ Figure "9" erased, figure "7" inserted with red ink, and on the margin was written in black pencil marks, "Issue not embodied in all of Morgan's claim and the 7th claim of Daniels."

a spider or lifting plate having supporting shafts that telescope one with the other, of a lifting mechanism comprising a pressure cylinder with primary and secondary plungers adapted for acting on the respective shafts, and a catch device for retaining said secondary plunger when in depressed position in relation to said primary plunger, for the purposes set forth.

10. [8]* The combination, with the reel and its shaft and
280 lifting spider and its shaft, of the pressure cylinder, the hollow primary plunger, the secondary plunger provided with the inclined lug *i*, the locking lever L, fulcrumed on said primary plunger with its end *l* extending through an opening into the primary plunger for engagement with said secondary plunger, substantially as set forth.

11. [9]† The combination, with a table or platform having a longitudinal channel or trough, of a plurality of revolvable rod-coiling receptacles, a plurality of jointed laterally adjustable guide-pipes and mechanism, substantially as described, for stopping and starting the [relative]‡ action of said rod-coiling devices, for the purpose set forth.

[12.§ The combination, with a revolvable rod-coiling receptacle or reel, arranged in connection with a table or platform covering the reel-operating mechanism, of a removable hood or guard arranged over or about said reel and supported on said platform, and means for elevating said hood, to allow access to said reel, substantially as *as* and for the purpose described.]

[13.‖ The combination of the table or platform A, the revolvable rod-coiling receptacles arranged in openings through said table, and the removable hood or cover T having openings O, substantially as described.]

14. [11]¶ The combination, with a rod-coiling receptacle or reel tub arranged to rotate with the top of its rim substantially level with a horizontal table, floor or platform, of an elevating spider or plate disposed within said tub, and adapted for lifting the coil of wire rod to a position above the level of said floor or platform to facilitate its discharge, substantially as set forth.

15. [12]** The combination of the coil receptacle B having
281 inwardly projecting ribs *b*, the series of pins or fingers b^2 and the lifting spider or plate C having arms that radiate across the space between said fingers and ribs, substantially as and for the purpose set forth.

[16. The combination with the rod-coiling receptacle or revolvable reed of a removable guard, hood or cover, guides T for retain-

* Figure "10" erased and figure "8" inserted with red ink.
† Figure "11" erased, figure "9" inserted with red ink, and "Aug. 28, 1886," written in red ink in the margin.
‡ Word in brackets erased, and "rotative" written in in red ink.
§ Matter in brackets erased, and "Substitute A^3, Aug. 28, 1886," written in red ink in the margin.
‖ Matter in brackets cancelled, and "Canceled Mar. 30, 1887," written in red ink in the margin.
¶ Figure "14" erased, and figure "11" inserted with red ink.
** Figure "15" erased, and figure "12" inserted with red ink.

ing said cover in proper relation as it moves to and from the supporting table, and means for elevating and lowering said cover, substantially as and for the purposes set forth.]*

Witness my hand this twenty-first day of June, A. D. 1886.

FRED. H. DANIELS.

Witnesses:
CHAS. H. BURLEIGH.
ELLA P. BLENUS.

Oath.

COMMONWEALTH OF MASSACHUSETTS, }
City and County of Worcester, } *ss:*

Fred. H. Daniels the before-named petitioner, citizen of the United States and resident of Worcester, in the county of Worcester in the State of Massachusetts, being duly sworn, deposes and says that he verily believes himself to be the original, first and sole inventor of the improvements in mechanism for coiling wire rods described and claimed in the annexed specification; that the said invention has not been patented to him, nor to others with his knowledge or consent, in any country; that the same has not to his knowledge been in public use or on sale in the United States for more than two years prior to this application, and that he does not know and does not believe that the same was ever known or used before his invention thereof.

FRED. H. DANIELS.

Sworn to and subscribed this 21st day of June, A. D. 1886.
Before me—

CHAS. H. BURLEIGH,
[L. S.] *Notary Public.*

282 Room 34.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *July* 30, 1886.
Mailed, " 31, "

Mechanism for coiling wire rods. S. No., 206,323. June 26, 1886.

Fred. H. Daniels, care Chas. H. Burleigh, Worcester, Mass.:

Reels and swinging guides, as set forth in claim 2, are not new, as shown by the patent to Morgan and Daniels No. 224,840, and other patents.

The tub, or coil receptacle as described and set forth in claims 3 and 4 does not constitute a proper subject for a combination claim, it being a mere structure, composed of a tub having integral ribs and pins, and, to be patentable, must be so claimed.

* Matter in brackets erased, and "Substitute A[1], Aug. 28, 1886," written in margin in red ink.

Attention is called to claim 6, a careful inspection of which will show the necessity for its revision.

The reel and spider shafts are both necessary in claim 10 to make the combination complete.

Claims 12 and 16 are fully met by the patent to Sweet No. 302,362, July 22, 1884—reeling.

Said claims 2, 12, and 16 are rejected on references and the 3rd 4", 6" and 10" claims are refused for the reasons given.

J. W. JAYNE, *Ex'r.*

C. H. MIXER.

Application of Fred. H. Daniels.

Serial No., 206,323. Filed June 26th, 1886.

Improvements in mechanism for coiling rods.

To the Commissioner of Patents.

SIR: The references and objections cited in office letter of July 30th, have been considered, and I hereby submit amendments as follows, viz:

Erase the 2nd clause of claim, and insert in place thereof—

["2. The combination, of a revolvable rod-coiling receptacle, a direct conductor or trough adjacent thereto, an adjustable
283 guide adapted for delivering the rod into said receptacle, or for delivering it past the receptacle into said conductor, accordingly as said guide is adjusted, and a cover or protecting guard, substantially as set forth."]*

In the 3rd claim, erase the words, "The combination, with the rim of" in the first line, and the word "of" in the 2nd line.

Insert after the word "reel" in 2nd line, the words "having, upon the inner side of its peripheral rim."

Change the 4th claim to read—

"(4) [2.]†‡ A rod-coiling receptacle consisting of an outer cylindrical rim provided on its inner side with a series of upwardly inwardly inclined ribs, and an inner circle composed of a series of upwardly outwardly inclined pins or fingers, substantially as *paid* for the purpose set forth."

Change 6th claim to read—

"(6) [4.]†§ The combination, of the rod-coiling receptacle mounted on the revolvable shaft D, the friction disk or wheel D^1, fixed on said shaft, the stationary friction rim H, the revolvable friction rim and gear G, and mechanism for raising and depressing the shaft and friction wheel, whereby said friction wheel is brought into contact either with the stationary friction rim H, or with the friction rim of the gear G, substantially as and for the purpose set forth."

---

*The matter in brackets erased, and insert "Cancelled Mar. 30, 1887," written in red ink, and "A" erased with red ink in the margin.

† Figures in parenthesis erased with red ink, and figures in brackets inserted with red ink.

‡ "A^1" inserted with red ink in the margin.

§ "A^2" inserted with red ink in the margin.

The clause of office letter which reads thus—"The reel and spider shafts are both necessary in claim 10, to make the combination complete."—is not understood, as the elements named, are now in the 10th claim, which commences with these words—"The combination, with the real shaft and lifting spider shaft," etc.

In 11th claim, substitute—"rotative" in place of "relative" in 5th line.

Amend the 12th claim to read—

"(12) [10.]*† The combination, of a revolvable rod-coiling
284 receptacle or reel, a stationary table or platform covering the reel-operating mechanism, and a removable hood or guard arranged over and about said reel and supported on said platform, and means for elevating and lowering said hood, substantially as and for the purpose described."

In the "Sweet" patent No. 302,362, there is shown simply a cover like a pot lid, held suspended above the revolving coil receiving cylinder. Said patent does not show a stationary platform, thus completely enclosing the revolving parts. It is therefore thought that the claim, as amended, may be allowed.

Amend the 16th claim to read—

"(16) [13.]*‡ The combination, of the rod-coiling receptacle or revolvable reel, the removable guard hood T, guides T^1 for retaining said cover in proper relation as it moves to and from the supporting table, and means for elevating and lowering said cover, substantially as and for the purpose set forth."

Respectfully submitted.

FRED. H. DANIELS.
By his attorney, CHAS. H. BURLEIGH.

Worcester, Mass., August 26th, 1886.

(2–061.)

(Interference.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *September* 4, 1886.

U. S. Patent Office,
Ex'r of interferences,
Sept. 10, 1886.

Fred. H. Daniels, care Chas. H. Burleigh, Worcester, Mass.:

Please find below a copy of a communication from the examiner concerning your application S. No. 206,323, for mechanism for coiling wire rods, filed June 26, 1886.

Very respectfully, M. V. MONTGOMERY.

C. E. MITCHELL.
Commissioner of Patents.

---

* Figures in parenthesis erased with red ink, and figures in brackets inserted with red ink.

† "A^3" inserted with red ink in the margin.

‡ "A^4" inserted with red ink in the margin.

285 Room No. 34.

All communications should be addressed to "The Commissioner of Patents, Washington, D. C."

Your case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the rules.

The statement demanded by rule 105 must be sealed up and filed on or before the 5th day of October, 1886, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is:

In a device for coiling wire, or wire rods, the combination with a rotating coiling receptacle, or reel for receiving and laying in coils the rod as it is delivered from the rolls, of a spider or platform for supporting the coil, mounted on a vertical shaft concentric with the reel-supporting shaft and means for elevating the platform shaft independently of the other. Being substantially the invention set forth in the 7-" claim in the present case and also in all the claims of an application filed by Charles H. Morgan, of Worcester, Massachusetts, whose attorney of record is Anthony Pollok, of Washington, D. C.

J. W. JAYNE, *Examiner.*

Application of Fred. H. Daniels.

Serial No., 206,323; filed June 26, 1886.

Improvement in Mechanism for Coiling Wire Rods.

To the Commissioner of Patents.

SIR: A certain claim of my above-names application being now in interference with the claim of another party, (viz., Daniels *v.* Morgan) I avail myself of the privilege laid — in rule 125, of rules of practice, and hereby divide my said application, withdrawing therefrom that part which relates broadly to the employment, in connection with a reel, of a direct delivery trough, and of a guard hood or cover; the same to form the subject-matter of a
286 separate division of application, drawings and papers for which are transmitted to the Patent Office herewith; and in order to effect this separation, I hereby cancel claims 1, 2, and 13 from the present application. Other non-interfering claims, embracing the above-named features in combination with features of a lifting platform, which is the matter in interference, are not withdrawn herefrom, and not prejudicially affected by the present division of the matter.

Further amendment of the specification in this case which may be required is suspended until the decision of the interference, Daniels *v.* Morgan, in which claim 7 is now involved.

Very respectfully, FRED. H. DANIELS.
By his attorney, CHAS. H. BURLEIGH.

Worcester, Mass., March 26, 1887.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *May* 13, 1889.
Mailed, " " "

"Mechanism for coiling wire rods." S. No., 206,323. June 26, 1886.

Fred. H. Daniels, care Chas. H. Burleigh, Worcester, Mass.:

A communication from the applicant in the above-named case, bearing date 7th instant, has been received. The claims referred to by applicant—to wit: "originally numbered 3rd and 4th claims,"—no longer exist, the former having been materially changed and the last-named claim erased on August 28, 1886.

The amendment now proposed has not therefore been entered because of the uncertainty of what claims applicant intended to erase.

J. W. JAYNE, *Ex'r.*

C. H. MIXER.

287 Examiner room No. 251.

Application of Fred. H. Daniels.

Serial No., 206,323; filed June 26, 1886.

Mechanism for Coiling Wire Rods.

To the Commissioner of Patents.

SIR: Office letter of May 13th, '89, is noticed. As supplementing my communication of May 7th, '89, I will ask the office to construe the term "the (originally numbered) 3rd and 4th claims"—therein referred to, as meaning the original 3rd claim with the amendment thereto, filed August 28th, 1886, and claim 4 contained in the amendment of August 28th, '86; and erase the wording of said claims from this application, the subject-matter thereof being withdrawn for separate application.

Respectfully,
FRED. H. DANIELS,
By his attorney, CHAS. H. BURLEIGH.

Worcester, Mass., May 22nd, 1889.

Application of Fred. H. Daniels.

Serial No., 206,323; filed June 26, 1886.

Improved Mechanism for Coiling Wire Rods.

Hon. Commissioner of Patents.

SIR: The above-named application having been placed in interference on an issue involving a part only of the subject-matter embraced in the application, I hereby avail myself of the privilege under rule 106 of Rules of Practice, and withdraw from this application so much of the subject-matter as relates to the construction

of the revolvable reel or coil-receiver with an outer barrier composed of a continuous rim and its inwardly projecting ribs, and an interior barrier composed of a concentric row of upright pins, the same to be introduced as a separate application for letters
288 patent which is herewith transmitted; and I accordingly hereby amend this application by erasing the (originally numbered) 3rd and 4th claims from the specification.

Respectfully, FRED. H. DANIELS,
By his attorney, CHAS. H. BURLEIGH.

Worcester, Mass., May 7th, 1889.

Serial No., [206,323].* 1886. Ex'r Book No. $\frac{129}{1808}$.

Patent No. ——. [Div. 13].*
Fred. H. Daniels,
Of Worcester,
County of "
State of Massachusetts.
Invention: Mechanism *of* coiling wire rods.

Parts of application filed.
- Petition, June 26, 1886.
- Affidavit, " "
- Specification, " "
- Drawing, ——.
- Model, ——.
- Specimen, ——.
- First fee, cash, $15, June 26, 1886.
- " " cert., ——.
- App. filed complete June 26, 1886.

Examined ——.
Countersigned: —— ——,
For Commissioner.
Notice of allowance, —— —, 188–.
Final fee, cash, ——, "
" " cert., ——. "
Patented "
Att'y or P. O. address, Chas. H. Burleigh, Worcester, Mass.

289–291 1886.

Contents.

[$\frac{1}{2}$.]* Application, [1]* paper(s)†. [M.]*
1. Rejection, July 30, 1886.
2. [Amendment A, Aug. 28, 1886.]*
3. Interference letter, Sept. 4, 1886.
4. [Amendment, Mar. 30, 1887.]*
5. Office letter, May 13, 1889.

Title: Improvement in ——.
99 Ex'd: E. L. L.; E. C. C.

* Matter in brackets inserted with red ink.
† Letter in parenthesis erased with red ink.

299 EXHIBIT MORGAN PATENT 220,300.

UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, of Worcester, Massachusetts.

Improvement in Reeling Mechanisms for Rod-rolling Machines.

Specification forming part of Letters Patent No. 220,300, dated October 7, 1879; application filed January 22, 1879.

To all whom it may concern:

Be it known that I, Charles H. Morgan, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful improvements in reeling and delivering mechanisms for rod-rolling machines to facilitate the coiling and removal of the metal rod after it leaves the finishing-rolls; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

(Here follow diagrams marked pp. 292, 294, 296 & 298.)

Figure 1 represents a top or plan view of my said improved reeling and delivering mechanism for rod-rolling machines, the last set or finishing-rolls of a continuous or other rod-rolling mill, and also a car or truck being shown to more clearly illustrate my said invention, hereinafter more fully described. Fig. 2 represents a side view of the parts shown in Fig. 1, looking in the direction indicated by arrow 1 of the same figure. Fig. 3 represents a central vertical transverse section through one of the reels of the machine, taken on line A B, Fig. 1, looking in the direction indicated by arrow 1′ of the same figure. Fig. 4 represents a portion of the device, hereinafter more fully described. Fig. 5 represents a side view of the expanding, rod-lifting, and carrying device, hereinafter more fully described, the same being shown by full lines in its most elevated position, with its arms expanded or thrown out, and, by dotted lines, dropped down into its lowest position, with its arms contracted or drawn in. Fig. 6 represents a central vertical section through a portion of the rod lifting and carrying device, taken on lines B C, Fig. 5, looking in the direction indicated by arrow 3 of the same figure. Fig. 7 represents a front view of the rod catching and holding device, hereinafter more fully described; and Fig. 8 represents a central vertical section through the rod catching and holding device, taken on line C D, Fig. 7, looking in the direction indicated by arrow 4 of the same figure.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the parts marked E represent the frame-work of

4 Sheets—Sheet 1.

C. H. MORGAN.

Reeling Mechanism for Rod-Rolling Machine.

No. 220,300. Patented Oct. 7, 1879.

No. 313.
Morgan & Daniels. } p. 292

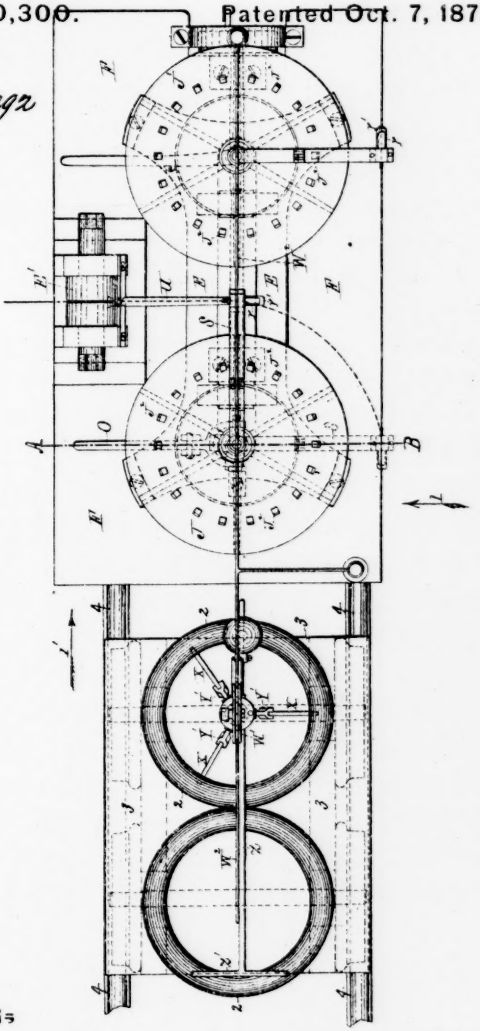


Fig. 1.

Witnesses:
Thos. H. Dodge
Edwin E. Moore

Inventor:
Chas. H. Morgan

4 Sheets—Sheet 2.

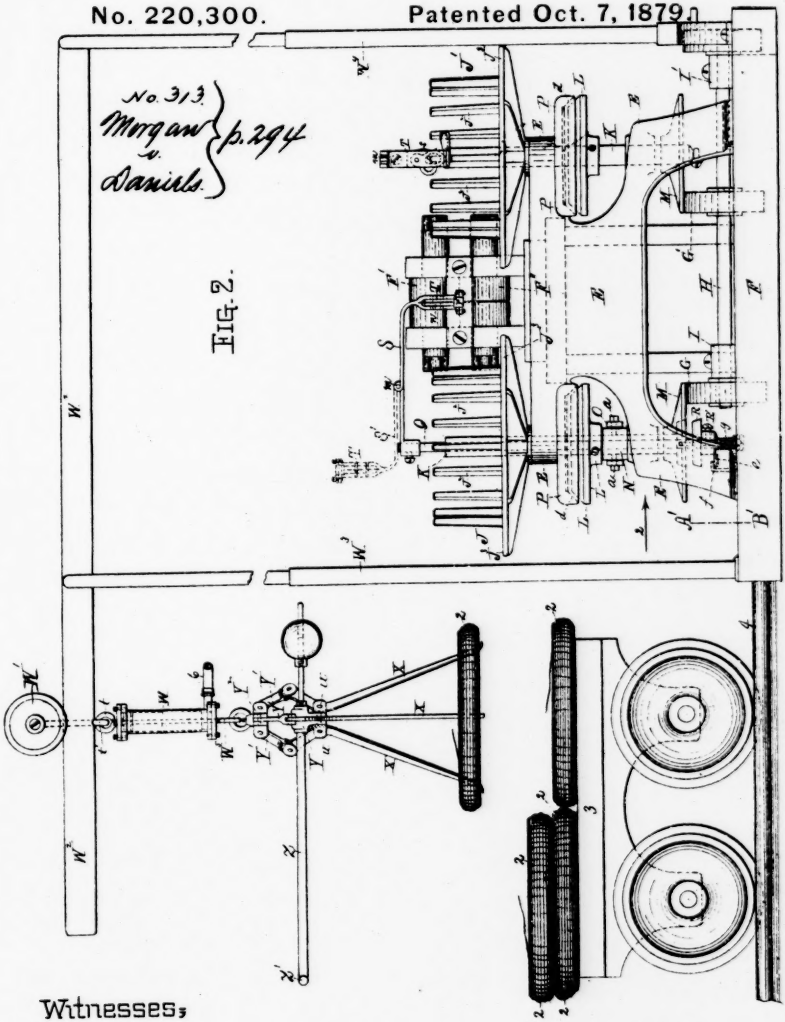
C. H. MORGAN.

Reeling Mechanism for Rod-Rolling Machine.

No. 220,300. Patented Oct. 7, 1879.

No. 313.
Morgan
v.
Daniels.
p. 294

FIG. 2.



Witnesses;
Thos. G. Dodge
Edwin E. Moore

Inventor;
Chas. H. Morgan

4 Sheets—Sheet 3.

C. H. MORGAN.

Reeling Mechanism for Rod-Rolling Machine.

No. 220,300. Patented Oct. 7, 1879.

No. 313.
Morgan
v.
Daniels } 296

FIG. 3.

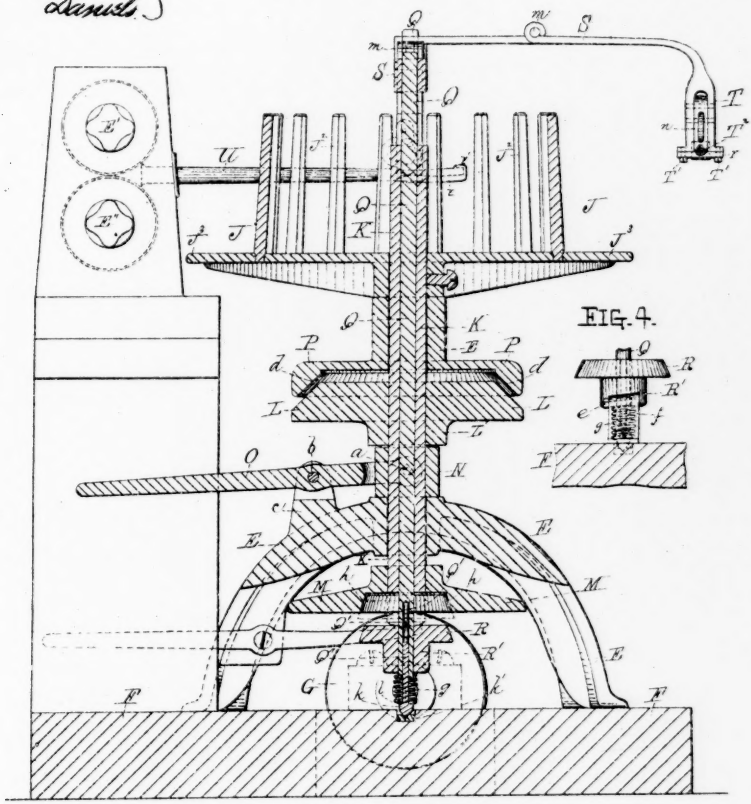


FIG. 4.

Witnesses:

Thos. G. Dodge

Edwin E. Moore

Inventor:

Chas. H. Morgan

4 Sheets—Sheet 4.

C. H. MORGAN.

Reeling Mechanism for Rod-Rolling Machine.

No. 220,300. Patented Oct. 7, 1879.

No. 313
Morgan
v.
Daniels
p. 298

FIG. 6.

FIG. 5.

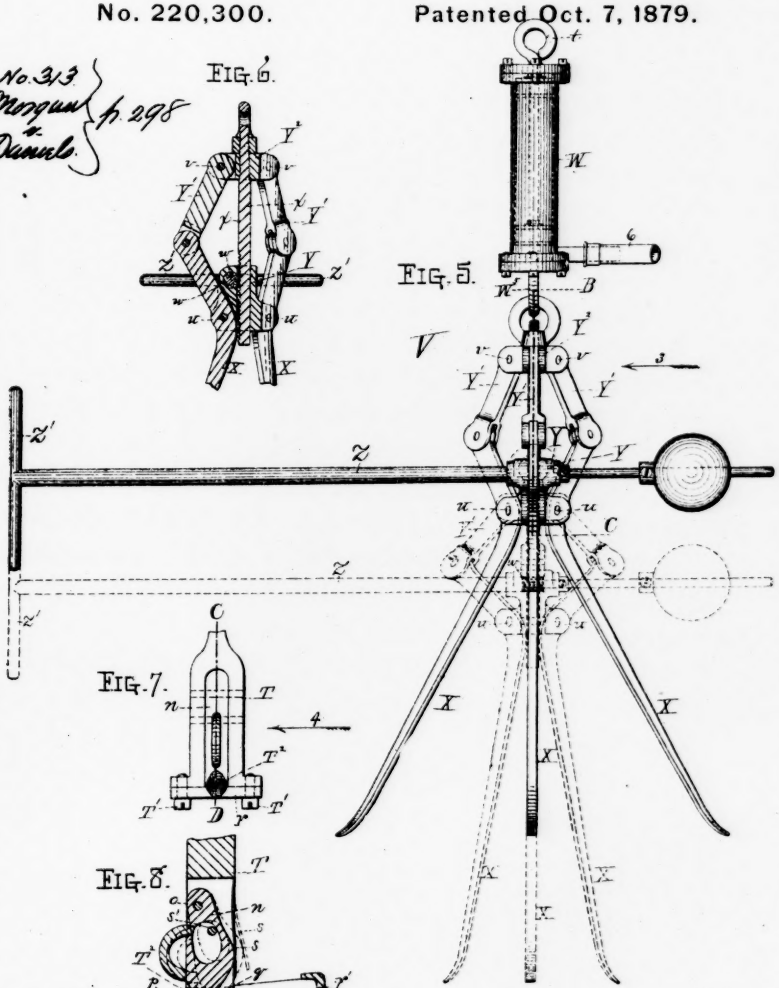
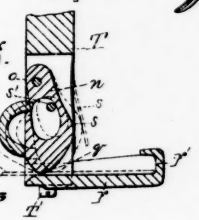


FIG. 7.

FIG. 8.



Witnesses:

Thos. G. Dodge

Edwin E. Moore

Inventor:

Chas. H. Morgan

the machine, which is arranged and secured upon flooring F. The machine in this instance is driven by means of friction driving-pulleys G G′, secured upon a horizontal driving-shaft, H, which is arranged to turn in bearings I I′, secured to flooring F; but, if preferred, said driving-power may be imparted by means of bevel friction or toothed gears, or in any other suitable and convenient manner.

The left-hand reel (shown in Fig. 2) and the parts connected therewith will now be described.

Upon an upright hollow shaft, K, which is fitted loosely, so as to slide up and down and also turn in its bearings, formed in frame-work E, is arranged and secured reel J, bevel friction-wheel L, (which acts as a brake to stop said reel J, as hereinafter described,) and friction wheel or pulley M. It will, therefore, be seen that the combined weight of the parts J, K, L, and M, with the latter bearing upon friction driving-pulley G, is amply sufficient to produce the necessary frictional driving-power to turn reel J in coiling the wire rods. By changing the position of the driving friction-wheels the speed of the reels can be regulated at pleasure.

Friction-brake L is for the purpose of quickly stopping the reel when a coil has been completed upon the same and ready for removal, and is operated as follows: A collar, N, is loosely fitted upon hollow shaft K, between the bottom of hub L′ of friction-brake L and the top of frame-work E below, and the ends of a forked lever, O, are hinged at the points *a a* to said collar N. Said lever O is fulcrumed at the point *b* upon standards *c c*, which constitute a part of frame-work E. Thus it will be seen that by depressing the outer end of lever O collar N will be brought to bear upon the under side of the hub of friction pulley or brake L, and friction-pulley M thereby raised off of the friction driving-pulley G. At the same time that pulley M is raised off of driving-pulley G the beveled surface of friction-brake L is forced up against the beveled surface *d*, formed in the under side of the part P of frame-work E, and the reel thereby quickly stopped.

By the above-described arrangement the necessity of unshipping the driving-power from the whole machine is obviated, which is of considerable practical advantage, since it allows the other reel to continue to turn without interruption, thereby entailing but little or no loss of time.

It will be understood that both reels are to be operated in the same manner; but for convenience I have only shown one fully provided with all the operating mechanism.

It will also be observed that by employing two reels instead of one much time is saved, as a coil can be forming upon one of the reels at the same time that the one previously formed upon the other is being removed to the car, truck, or other receptacle provided to receive it, as hereinafter more fully described.

As the reels are arranged upon the rear or delivering side of the finishing-rolls, and equidistant from the center thereof, the swinging arm of each can be quickly thrown into position to alternately seize and coil the rod.

A small upright shaft or spindle, Q, is arranged to slide up and down and also to turn in hollow shaft K. Upon the lower end of said spindle Q is secured a bevel friction-pulley, R, provided with a hub, R′, which in turn is provided with a flange or projection, *e*, which is arranged to catch under a latch, *f*, secured to flooring F.

Driving-power is imparted to friction-pulley R and spindle Q to turn arm S, secured upon the upper end of said spindle, by the beveled surface of friction-pulley R being forced up by a spiral spring, *g*, against a correspondingly-beveled surface, *h*, formed in the under side of friction wheel or pulley M. (See Fig. 3 of the drawings.)

The lower end of spindle Q is made hollow, as represented at Q′, so that a smaller spindle, Q″, may fit into the same and allow the former to work up and down, as hereinafter described. The lower end of spindle Q″ is provided with a conical-shaped head, *k*, which rests and turns upon a metallic piece, *k′*, arranged in a socket formed in flooring F. Spiral spring *g* is held in place between the shoulder *l* of said conical head *k* and the under side of hub R′ of friction-pulley R.

Arm S is made jointed, as shown at *m*, for the purpose of allowing it to be swung up and over out of the way in removing a finished coil, as represented by dotted lines S′, Fig. 2 of the drawings.

The head T of arm S is provided with a rod seizing and holding device, which is constructed as follows, (see Figs. 7 and 8 of the drawings:) A swinging friction latch or dog, *n*, hinged at the point *o*, is so formed and arranged that when a wire rod, *p*, (shown by dotted lines, Fig. 8) is inserted or runs between the lower rounded end, *q*, of said dog *n* and the part *r*, secured to the part T by means of screws or bolts T¹ T¹, it swings back, as represented by dotted lines, so as to allow the end of the rod to pass into the head T and strike the socket end *r′* of the part *r*, where it is securely held until removed by the operator, as hereinafter described.

Spring *s*, it will be seen, presses the latch or dog *n* down upon the rod, so that it will catch when said rod is drawn taut, and pin *s′* simply governs its forward-and-backward swing.

The reel having been put in motion, and the billet to be rolled having been properly heated preparatory to being passed through the rolling-mill, the operator enters one end of the heated billet into the receiving-rolls, after which the operation of rolling the billet into a rod proceeds in the usual manner.

The friction-wheels G G′ may be driven by power applied in any suitable manner to their respective shaft or shafts.

The end of the metal rod can be easily removed from head T after the operator has simply forced back dog *n*, as indicated in dotted lines, Fig. 8, thereby releasing its hold upon the end of the rod.

The operation of catching, holding, and coiling the wire rod rolled from a billet after it passes the finishing-rolls F′ F″ upon one of the reels may be briefly summed up thus: Arm S is first placed in the position represented by the full lines, Figs. 1 and 2 of the draw-

ings, with the end of guide-pipe U in the mouth T^2 of head T, and flange or projection *e* under latch *f*. (Shown by dotted lines, Fig. 2, and full lines, Fig. 4.) The wire rod now passing forward from between the finishing-rolls F′ F″ and through guide-pipe U, enters the head T of jointed arm S, passing under swinging dog *u*, strikes the end *r′* of the part *r*, and forces said arm forward, consequently turning shaft Q, thereby disengaging flange *e* from the action of latch *f*. Spring *g* then forces friction-pulley R up against friction-pulley M, thereby giving the same rotary motion to arm S in coiling the wire rod as is given to reel J by driving-pulley G.

The rolling of the billet having been completed, and the wire rod rolled therefrom having been coiled or wound upon reel J, the reel J and arm S are stopped by raising friction-pulley M off of the driving-pulley G by means of lever O, as before described, and the finished coil removed, as hereinafter more fully explained.

The operation of sliding flange or projection *e* from under latch *f* may be facilitated by securing a small friction wheel or roll upon the end of said flange.

If preferred, instead of a small spindle, Q″, and spiral spring *g*, for forcing friction-pulley R up against pulley M, the lower end of shaft Q may be provided with a conical point resting upon the end of a weighted lever, a projection on said lever working in a groove formed in the lower end of the shaft, whereby the operator can easily and quickly depress said shaft for the purpose of bring-
301 ing flange *e* under catch *f* again, preparatory to repeating the operation of rod-coiling, as before explained.

The reels are provided with a wide firmly-supported base, J^3; consequently there is no danger or liability of any portion of the rod-coil dropping off, and thereby interfering with the proper coiling of the rod and its removal from the reel.

V represents the rod lifting and carrying device of the machine, which is arranged, constructed, and operated in the following manner:

The device, in this instance, is represented as being raised and lowered by hydraulic pressure. A cylinder, W, is suspended by means of a hook, *t*, and connecting-link *t′* upon the axis of wheel or truck W^1, which travels back and forth upon an elevated track, W^2, supported upon standards W^3 W^4. To the lower hooked end of piston-rod W^5 is suspended the coil-grappling portion of the device, which is provided with expanding and contracting arms X, hinged at the points *u* upon a central supporting-piece, Y, and at their upper ends to the hinged link-pieces Y^1, which, in turn, are hinged at their upper ends at the points *v* to another central supporting-piece, Y^2.

The device is operated to contract and expand its arms X by means of a balanced lever, Z, upon which is formed a pinion, *w*, which works in a rack formed in the vertical bar *x*, secured to the part Y^2.

When it is desired to remove a finished coil from either of the reels the attendant first propels the device over the center of the reel from which the coil is to be removed, when he then lowers it,

with the arms contracted, as represented by dotted lines, Fig. 5 of the drawings, then expands said arms so as to grasp the coil, as represented by full lines, Figs. 2 and 5, by turning handle Z′ of balanced lever Z, after which he then raises it with the coil supported upon the ends of arms X, and propels it to the point at which it is to be dropped upon the car or truck placed underneath to receive it. He then lowers the device and contracts the arms, and the coil is allowed to drop upon the car 3, arranged to run upon the track 4, leading from the finishing end of the mill, as indicated in the drawings. (See Figs. 1 and 2.)

If preferred, the lifting-arms X may be arranged to take hold of the coils 2 from the outside instead of from the inside, as shown in the drawings.

Although I have represented the device as being raised and lowered by hydraulic pressure, any other suitable method may be employed, if preferred, without departing from the principle of my invention; and instead of supporting track W^2 upon standards W^3 W^4 the same may be supported from above, if desired, by any suitable and convenient mechanism.

Piston-rod W^5 in this instance is provided with a head which works in the cylinder W, and which head is elevated to lift the rod-coils 2 from the reels by water allowed to pass through the pipe 6, connected with cylinder W, and so arranged that the water in passing in will enter between the lower head of cylinder W and the under side of the piston-head, attached to piston-rod W^5.

From the foregoing description it will be seen that by my invention a wire rod may be seized and properly coiled upon one of the reels of the machine, then removed from the latter even while in a red-hot state, and placed upon a car, truck, or other receptacle provided to receive it in a very quick and expeditious manner, and that, too, without endangering in the slightest degree the life or limb of the attendant or attendants in charge of the same, which latter objection has been very great in reels heretofore used, where the rod is caught and conducted to the reel by hand.

Another practical advantage of my invention is that, by arranging the reels upon perpendicular instead of horizontal shafts, the rod-receiving arms J^2 in said reels may be made more inclined toward the center, thereby enabling the coils of wire rod to be more easily removed, while at the same time they are effectually prevented from falling off of the same, as is often the case when coiling rods upon reels arranged upon horizontal shafts.

Again, it will be observed that by my invention two reels and rod-guiding mechanism are so combined with a set of finishing-rolls of a rolling-mill as that the finished rod, which is delivered from the mill with great rapidity, instead of being allowed to run out upon the ground for fifty or a hundred feet before the attendant can seize the end and commence the reeling operation, is automatically guided at once to the reel upon which it is to be reeled or coiled, thus saving the expense of several attendants, while at the same time insuring the more perfect coiling of the rod, and obviating the liability to accidents, both to the rod and attendants, inci-

dent to the old mode, in which the rod is first allowed to run out upon the ground, as before stated, in which case several attendants are required to keep the rod pulled out in various directions by means of draw-hooks until the reeler can take up the surplus rod, which often amounts to seventy-five or a hundred feet, and sometimes more.

Having described my improvements in reeling and delivering mechanism for rod-rolling machines, what I claim therein as new and of my invention, and desire to secure by letters patent, is—

1. The combination, with a rolling-mill and rod-coiling reel, of a rod-guiding tube, U, and seizing mechanism S T, substantially as and for the purposes set forth.

2. The combination, with the self-adjusting spindle Q, of the hinged rod guiding and seizing arm S, flange *e*, spring *g*, and latch *f*, substantially as and for the purposes set forth.

302 & 303 3. The combination, with the hinged arm S, dog *n*, and spring *s*, of the resisting-socket *r'*, substantially as and for the purposes set forth.

4. The combination, with the reel, of the friction-wheels G, M, and L, disk P, and lever O, substantially as and for the purposes set forth.

5. The combination, with the expanding grappling-arms X, properly connected, and hinged link-pieces Y^1, of the central rack-bar *x* and extended operating-arm Z, provided with a pinion, *w*, and crank or handle Z', substantially as and for the purposes set forth.

CHAS. H. MORGAN.

Witnesses:

THOS. H. DODGE.

EDWIN E. MOORE.

304 "EXHIBIT DAELEN PATENT."

H. E. Hill, N. P.

(Copy.)

A. D. 1878, 30th November. No. 4897.

Rolls for Rolling Wire.

Letters patent to Frank Wirth, of the firm of Wirth and Company, patent solicitors, at Frankfort-on-the-Main, in the Empire of Germany, for the invention of "improvements in rolls for rolling wire." A communication from Reiner Daelen, of Düsseldorf, in the Empire of Germany.

Sealed the 27th May, 1879, and dated the 30th November, 1878.

Provisional specification left by the said Frank Wirth at the office of the Commissioners of Patents on the 30th November, 1878.

Frank Wirth, of the firm of Wirth and Company, patent solicitors, at Frankfort-on-the-Main, in the Empire of Germany. "Improvements in rolls for rolling wire." (A communication from Reiner Daelen, of Dusseldorf, in the Empire of Germany.)

This invention relates to improvements in rolls for rolling wire whereby a set or series of wire rolls is caused to work direct from each other without the use of conical wheels, and the rolling of the wire is effected without hand labour.

The said invention consists of a series of pairs of rolls placed one behind the other horizontally and vertically. I provide
305 toothed wheels by which the pairs of horizontal rolls are worked, the pairs of vertical rolls being driven direct from the former by means of an endless screw. The reduction of the calibre of all the rolls is equal from No. 1 to 10 in the proportion of 8 to 5. All the calibres are of trapezian form; then follows an oval, and then finally the round and finish wire groove.

The speed at which the rolls run is made to correspond to the stretching of the bar of metal as it grows longer, the last pair of rolls having to run considerably faster than the first pair, the first pair making about ten and the last about one thousand revolutions a minute.

Specification in pursuance of the conditions of the letters patent filed by the said Frank Wirth in the Great Seal Patent Office on the 30th May, 1879.

Frank Wirth, of the firm of Worth and Company, patent solicitors, at Frankfort-on-the-Main, in the Empire of Germany. "Improvements in rolls for rolling wire." A communication from Reiner Daelen, of Dusseldorff, in the Empire of Germany.

This invention relates to improvements in rolls for rolling wire whereby a set or series of wire rolls is caused to work direct from each other without the use of bevel wheels, and the rolling of the wire is effected without hand labour.

(Here follows diagram marked p. 308.)

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WIRTH'S SPECIFICATION.

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FIG. 1

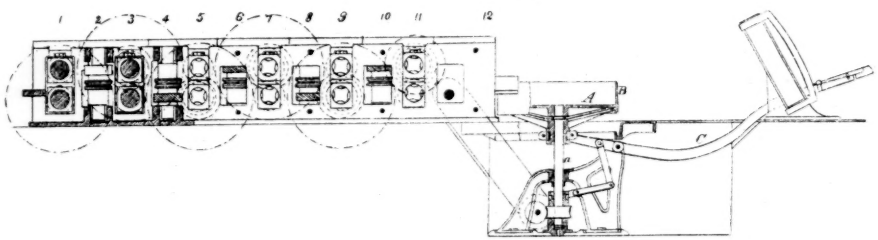


FIG. 2.

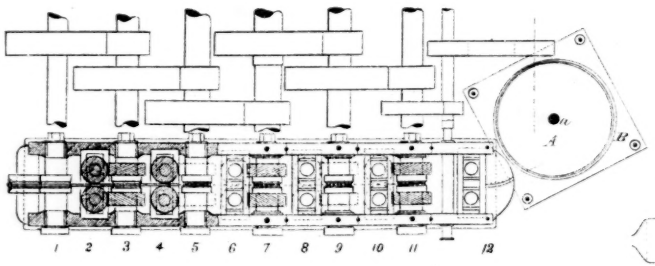


FIG. 3

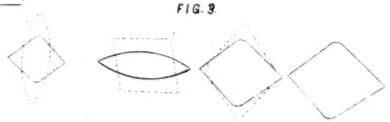
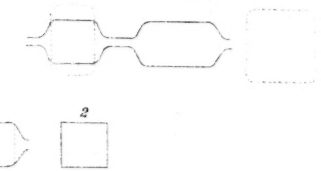


FIG. 4.



The said invention comprises a series of pairs of rolls placed one behind the other, and arranged horizontally and vertically, as shewn in figures 1 and 2, which represent a vertical longitudinal section of a series of rolls arranged according to my invention, and a
306 plan or top view partly in section of the same. In these figures are shewn the toothed wheels by which the six pair of horizontal rolls are worked, the six pairs of vertical rolls being driven direct from the former by means of endless screws.

The calibre of the rolls as formerly used is shewn in figure 3 of the drawing, and the calibre of the rolls constructed according to to this invention is illustrated in figure 4.

The reduction of the calibres is equal throughout the series of rolls from No. 1 to 10 in the proportion of 8 to 5, all of these calibres being of trapezian form; then follows an oval, and then, finally, the round and finished wire groove.

The speed at which the rolls run is made to correspond to the stretching of the bar of metal as it becomes elongated, the last pair of rollers having to run considerably faster than the first pair, the first pair making about ten and the last pair about one thousand revolutions per minute.

In combination with my improved arrangement of rolls, as above described, I employ a wire winding or collecting apparatus, as shewn in figures 1 and 2. This apparatus consists of a plate A surrounded by a rim B, the plate A being attached to the vertical journal *a* which receives motion from the wire rolls through suitable gearing. The rim B does not move with the plate A and is capable of being lowered by means of the lever C. As long as the machine is in motion the said rim is held in its elevated position, as shewn in figure 1.

As the wire comes from the mill it shoots or passes to the plate A and against the rim B. The plate A in revolving carries the wire around until the piece is finished, and the rim B is then lowered and the coil lifted from the said plate.

Having thus fully described the said invention, and the
307–309 manner of performing the same, I wish it understood that I claim—

First. The method of running a set or series of wire rolls direct from each other without the use of bevel wheels, substantially as shewn and described.

Second. The trapezian-shaped groove for wire rolls, as shewn and described.

Third. The mechanism for rolling wire without hand labor, as above set forth.

Fourth. The combination with the said mechanism of the improved winding or collecting apparatus, substantially as shewn and described.

In witness whereof, I, the said Frank Wirth, have hereunto set my hand and seal, this twenty-sixth day of May, in the year of our Lord one thousand eight hundred and seventy-nine.

FRANK WIRTH. [L. S.]

311 EXHIBIT STOVER PATENT No. 219,124.

UNITED STATES PATENT OFFICE.

DANIEL C. STOVER, of Freeport, Illinois, assignor to Washburn & Moen Manufacturing Company, of Worcester, Massachusetts.

Improvement in Reels for Coiling Wire Rods.

Specification forming part of Letters Patent No. 219,124, dated September 2, 1879; application filed February 24, 1879.

To all whom it may concern:

Be it known that I, Daniel C. Stover, of the city of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful improvements in automatic reels for coiling wire rods; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

(Here follows diagram marked p. 310.)

Figure 1 represents a rear-end view of my said improved automatic reel. Fig. 2 represents a top or plan view; and Fig. 3 represents a central longitudinal section through the rod-guiding arm on line A B, Fig. 2, as will be more fully explained hereinafter.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked C represents the flooring or base upon which the reel is arranged and secured. The parts marked D represent the standards which support the bearings of the tubular shaft D′ of the coiling-reel E, as indicated by dotted lines, Fig. 2.

Reel E is revolved by means of a belt passing around the driving-pulley *b*, secured fast upon the tubular shaft D′.

The standards D″ support the bearings of a shaft, *d*. (Represented in dotted lines, Fig. 2, and full lines, Fig. 1.) This shaft *d* is rotated by a belt passing around its pulley *c*. Upon one end of shaft *d* is secured a cam, *f*, which cam, when shaft *d* is revolved, strikes against the enlarged end 1 of a movable spindle, *g*, which passes through the tubular shaft D′, and carries on its outer end a rod-discharging disk or head, E′, which is provided with holes for the passage of the reel-arms F, upon which the rod is coiled or wound as it is finished, and passes through the rod-guiding arm G, as will be hereinafter more fully described.

The rod-guide arm G is provided with a hole or opening, 3, passing through its entire length, as fully indicated in Fig. 3 of the drawings, for the passage of the finished rod, 4. The front end G′ of rod-guide arm G is hinged or pivoted between ear-pieces 5 5 on

D. C. STOVER.

Reel for Coiling Wire-Rods.

No. 219,124. Patented Sept. 2, 1879.

No. 313.
Morgan
v.
Daniels
} p. 310

FIG. 1.

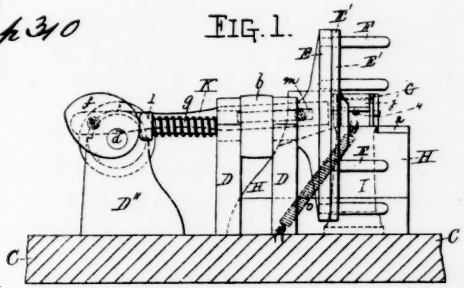


FIG. 2.

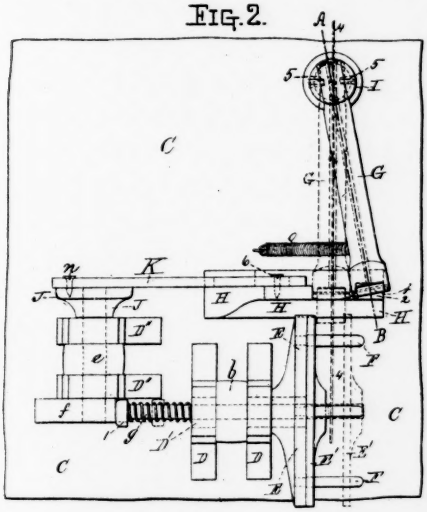
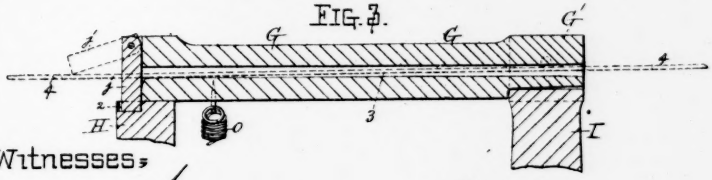


FIG. 3.



Witnesses:

Edwin E. Moore

Albert A. Barker,

Inventor.

Daniel C. Stover

the upper end of the swivel-standard I, which is so secured to the base C or otherwise constructed so that it can turn to permit rod-guide arm G to swing back and forth to a certain extent, for the purpose of allowing its rear end to occupy the positions shown in full and dotted lines, Fig. 2 of the drawings.

The hinged connection of the front end of rod-guide arm G is of such a character as to allow its rear end to rise and fall, for the purpose of permitting the stop lid or dog *j* to drop into slot or recess 2 when the rear part of the guide-arm is swung out into the position shown in full lines, Figs. 2 and 3 of the drawings.

One end of a spring, *o*, is secured to the rear end of arm G, while the other end of spring *o* is secured to base C in such a manner that its contracting force will draw the rear end of arm G into the position shown in dotted lines, Fig. 2, whenever and as soon as the lid or dog *j* is forced out of slot 2, as indicated in dotted lines, Fig. 3.

The operation of my improved reel for coiling or winding steel rods as they are delivered from the finishing-rolls of the rolling-mill is as follows: The arrangement of the reel being such that the hole or opening 3 at the front end of rod-guide arm G will be on or nearly on a line with the groove through which the finished rod passes from the mill, the end of the rod is passed into hole or opening 3, (and said opening may be made with a trumpet-shaped mouth for convenience,) and passes through and strikes against lid or dog *j*, throwing it out of slot or recess 2, thereby permitting spring *o* to suddenly draw the front end of arm G into position shown in dotted lines, Fig. 2, thus bringing the end of the rod 4 directly within the action of the reel-arms F, as indicated in dotted lines, Fig. 2, and as reel E and its arms F are being rotated the rod is carried up and around upon reel-arms F until the coil is completed, after which the attendant puts into motion pulley *e*, thus causing cam *f* to strike against enlarged end 1 of spindle *g*, and forcing it forward together with disk or head E′ to the position shown in dotted lines, Fig. 2, thereby discharging the coil from the arms F of the reel E, said coil dropping upon the floor or into a receptacle, car, or truck provided to receive it.

312 By the same motion of shaft *d* which throws spindle-arm *g* forward to discharge the coil-rod, a wheel, J, fast on shaft *d*, carrying a wrist or crank pin, *n*, is rotated, and gives motion to an eccentric-lever, K, one end of which is fitted to wrist-pin *n*, while the other end is provided with a slot, *m*, by which it is guided by means of a stationary guide pin or screw, 6, so that when it is moved forward by rotation of shaft *d* it will force rod-guide arm G into its original position, (shown in full lines, Figs. 2 and 3,) with the lid or dog *j* dropped into a slot or recess 2, thereby leaving the parts in proper position for commencing the coiling of another rod as before explained.

Those skilled in the art will readily understand and appreciate the great practical advantages of my improved reel, since the operation of securing the end of the rod to the reel-arms with certainty is performed by mechanical means, and therefore the dangerous operation of securing the same by the hand of the operator by means

the upper end of the swivel-standard I, which is so secured to the base C or otherwise constructed so that it can turn to permit rod-guide arm G to swing back and forth to a certain extent, for the purpose of allowing its rear end to occupy the positions shown in full and dotted lines, Fig. 2 of the drawings.

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312 By the same motion of shaft *d* which throws spindle-arm *g* forward to discharge the coil-rod, a wheel, J, fast on shaft *d*, carrying a wrist or crank pin, *n*, is rotated, and gives motion to an eccentric-lever, K, one end of which is fitted to wrist-pin *n*, while the other end is provided with a slot, *m*, by which it is guided by means of a stationary guide pin or screw, 6, so that when it is moved forward by rotation of shaft *d* it will force rod-guide arm G into its original position, (shown in full lines, Figs. 2 and 3,) with the lid or dog *j* dropped into a slot or recess 2, thereby leaving the parts in proper position for commencing the coiling of another rod as before explained.

Those skilled in the art will readily understand and appreciate the great practical advantages of my improved reel, since the operation of securing the end of the rod to the reel-arms with certainty is performed by mechanical means, and therefore the dangerous operation of securing the same by the hand of the operator by means

of a pair of pinchers is obviated, while at the same time much labor is saved and great expedition is attained in the rolling and coiling operation.

It will be observed that as the rod passes through arm G with considerable rapidity it will have extended beyond the arm to a considerable distance by the time it is thrown or drawn within the action of the reel-arms; consequently there is no danger or liability of its being thrown back and out of the action of the reel-arms.

Having described my improved reel for coiling wire and steel rods, what I claim therein as new and of my invention and desire to secure by letters patent is—

1. The swinging rod-guide arm G, to which is hinged the lid or dog *j*, with the reel E, substantially as and for the purpose set forth.

2. The combination, with guide-rod arm G, to which is hinged the lid or dog *j*, and slotted stand H, of eccentric-wheel J and eccentric-lever K, substantially as and for the purpose set forth.

DANIEL C. STOVER.

Witnesses:
EDWIN E. MOORE.
ALBERT A. BARKER.

313 *Patent Office Decisions.*

United States Patent Office.

DANIELS
v.
MORGAN.

Mechanism for Coiling Wire Rods.

Application of Daniels filed June 26, 1886.
Application of Morgan filed June 24, 1886.

Decision of Examiners of Interferences.

Mr. Charles H. Burleigh, attorney for Daniels.
Mr. Anthony Pollok, attorney for Morgan.

The issue in controversy is defined as follows:

"In a device for coiling wire or wire rods the combination with a rotating coiling receptacle or reel for receiving and laying in coils the rod as it is delivered from the rolls of a spider or platform for supporting the coil, mounted on a vertical shaft, concentric with the reel-supporting shaft, and means for elevating the platform shaft independently of the other."

Daniels, the junior party, claims conception of the issue in controversy in July, 1878, and for the purpose of establishing it he presents the testimony of himself and the witnesses Lambert and Fowler. He himself testifies that directly after his return from Europe, in July, 1878, where he went for the purpose of visiting the principal rolling mills of that country, he conceived the invention

in issue; that during that month he made sketches of his conception and showed and described them to both Fowler and Lambert; that his plan at that time involved the use of a lever and
313*a* foot power for the purpose of raising the shaft and platform, and at the same time the completed coil on top of the platform clear of the reel finger or walls of the reel. These sketches have not been offered in evidence, nor has their absence been accounted for.

The witness Lambert testifies that within three or four weeks after Daniels came back from Europe, in July, 1878, he came into his shop with a sketch and asked him to make a model of it; that being busy he merely looked at it, and told him that he had no time to do so; that the sketch as explained to him "showed a round piece of iron with a shaft in the centre, and a casing around the round piece of iron that made a dish. Inside the shaft there was a hole to put a pin in another shaft,—a hollow shaft. The inside shaft was longer than the outside one. This round piece of iron, with the casing and the shaft, was put on to a square bench. Inside the large casing was a piece of iron attached to the inside shaft, which I called a 'spider,' and then there was a bar and another piece of iron underneath that to take hold of the inside shaft under the bench to raise it up. Farther this way, outside of the 'bench there was a place to put your foot on;'" that in the fall of 1886 Daniels came again to his shop and asked him if he remembered the sketch shown to him in 1878, and if he could make a model of it; that Daniels told him he had no sketch of it, but wished him to make the model just as he remembered it; that he did so, being governed only by his judgment and his remembrance of the sketch that he had seen some eight years previously.

The model made by him in 1886 is offered as an exhibit. It certainly shows all of the elements of the issue, and fully embodies the invention in controversy.

The witness Fowler states that Daniels visited him in Providence, R. I., on July 20, 1878; that during that visit, which lasted over Sunday, he "explained by rough sketches an arrangement he had for coiling wire after it was delivered from the rolls, which was a round box mounted on an upright shaft, and in the bottom of the box was a plate,—perhaps I should say a movable plate,—which could be lifted for the purpose of raising the coil of wire. That was his method of getting hold of the coil to get it out of the box."

The testimony of Daniels discloses that prior to his return
313*b* from Europe, in May, 1878, a plan occurred to him for removing a completed coil of wire from the reel, which he described as follows: "The discharging device consisted of a large spider or fork suspended from a wheel which was supported to roll on an overhead track. In order to discharge the coil it was my plan for an attendant to introduce the spider or fork in under the coil, lift the coil vertically clear of the pins of the reel and remove it to the place of deposit by means of the overhead track and truck wheel." With reel of this construction in his mind, he returned to this country on July 1, 1878. Twenty days afterwards he was in Providence

on a social visit to his friend Fowler. It was on the occasion of this visit that he disclosed to him his conception of a reel-discharging device. Daniels insists that after his return from Europe and previous to this visit he had conceived a discharging device such as the issue defines, and that it was this latter conception that he explained to Fowler.

If Fowler's testimony be analyzed, however, it will be seen that the device which he states was explained to him is not the device in issue. If the sketch of the device which he conceived before his return to this country be examined, it will be seen that Fowler's explanation is more nearly descriptive of it than of the invention in issue. This sketch and Fowler's description illustrate and describe a box, or platform, mounted on an upright shaft, with a movable plate, which may be lifted for the purpose of raising the coil; but neither of them describe or illustrate a plate "mounted on a vertical shaft, concentric with the reel-supporting shaft." This element in the construction is the main point in issue. Fowler is entirely silent as to having had a construction embodying it explained to him, and the conclusion is not only reasonable but irresistable, that the only explanation or disclosure that Fowler received from Daniels was that of his conception in Europe. At all events it is very clear that Daniels did not disclose to him a construction such as the issue defines, and that, therefore, his testimony is entitled to no consideration in determining the date of Daniels' conception.

The testimony discloses that the witness Lambert is by trade a tinsmith; that he is a good mechanic, and that for sixteen years he has been in the employ of the Washburn & Moen Company,
314 of Worcester, Mass., during all of which time he has been acquainted with Daniels. He seems to have a most remarkable memory. Without ever having seen it in the meantime, and in the absence of any circumstances calculated to impress it upon his memory at the time of his only inspection of it, or to recall it afterwards, he testifies minutely in 1887 as to what a certain sketch showed which Daniels exhibited to him some time in 1878. He not only does this but presents a model of what he remembers the sketch to have contained. This model he states was made by him in the fall of 1886 entirely from memory; that in making it he went by his "judgment and the sketch he had seen before." This sketch has not been offered in evidence nor has there been any attempt to account for its absence. Being presumably able to produce it, it is not seen why he should endeavor to prove its contents by an exhibit made after the interference was declared, when he could, for aught that is shown to the contrary, do so more clearly and convincingly by simply introducing the sketch itself.

But, aside from this, it requires a great deal of confidence in Lambert's peculiar ability to remember past events, to give it any weight. Over eight years had elapsed between the only time that he saw the sketch and that upon which it was again called to his attention; yet he unhesitatingly goes to work and constructs a model from memory alone, without the sketch before him, and aided only by his judgment. According to his own statement he is able to

make a model after a drawing that has simply been shown to him; that he remembers all the drawings that he has seen within the last eight or nine years, and could make a model from memory of "every bloody one of them;" but it is believed that to do this he would be obliged to act as he has done in this instance, viz., to invoke the aid of his judgment, and this to no inconsiderable extent. How far his judgment aided him in making the exhibit, or to what extent he relied alone on his memory, is a matter that cannot well be determined. It is in evidence that he saw reels in 1879, and that he has since seen reels running in the mills of the Washburn & Moen Company similar to the one shown in his model. As to these latter reels he gives the impression that he did not see or examine them until after the model was made; but Morgan states in his testimony
315 that Lambert's work-room was in the shop building where the latter reels were constructed; that he had access to all parts of the shop, and that his regular employment carried him to all parts of the works. These reels were in operation in 1886, before he made his model. It is fairly to be presumed that he saw them, and, aided by his remarkable memory, must have remembered how they were constructed, and had their construction in his mind when he commenced work upon it, and that his judgment was largely exercised in order that the construction as shown in the sketch should conform to that of the reels in operation in the mill. This view of the case finds confirmation in a very trifling circumstance. It is in evidence that no reel prior to 1886 was made with a lifting platform that was convex, all of them being flat or concave; yet Lambert's model has a platform that is convex. Now it is very strange that Daniels should have exhibited a sketch in 1878 to Lambert that had a convex platform, and then make, as he alleges, a practical reel in 1879 that had one of a different character, and which, too, was not so good. Another circumstance seems to have weight in determining the force of Lambert's testimony; several sketches made by Daniels subsequent to the date upon which the alleged sketch shown to Lambert was made have been presented. (See Exhibit Daniels Sketches 1 and 2.)

If the sketch that Lambert saw was similar in its execution to these, it is submitted that he must be possessed, not only of a remarkable memory, but of a very lively imagination as well, to have gathered and retained for so long a time a clear and distinct impression of what it contained from having it merely shown to him.

With only the testimony of this witness to corroborate Daniels as to conception in 1878, the examiner is unwilling to accord it to him, and there being no evidence as to conception at any other time prior to October, 1878, the date that Morgan alleges for his conception, it follows, should the proofs show that he is entitled to this October date, that Morgan was the first to conceive the device in controversy.

Before pursuing the case of Daniels any further, it will be well to take up the evidence in behalf of Morgan, and determine his status in this controversy. He claims conception in October, 1878,
316 and reduction to practice in March, 1886. Considering first

his own testimony, it appears that in October, 1878, a Mr. Stover came to him at the works of the Washburn & Moen Company, and stated that he had made an improvement in machinery for coiling wire rods, gave him a description of it, and showed him a model of his invention; that he discovered a valuable feature in it, and at once negotiated with him in behalf of the company and secured for it the benefit of the improvement; that when the model was shown to him he conceived the idea of applying the principle embodied in the discharging device shown in the model to a reel which he himself had invented; that he so told Stover and showed him models of two reels, for which he afterwards received patents Nos. 220,300 and 224,941.

Stover's testimony is fully corroborative of the statements made by Morgan. The model that he showed to him is offered as an exhibit. An inspection of it shows that it embodies the whole issue herein, except that the shafts supporting the reel and discharge plate are arranged horizontally instead of vertically. The construction that Morgan's model showed, and for which patent No. 220,300 was afterwards granted, shows every element of the issue save the discharging platform. It is very readily to be seen how Morgan, upon being shown Stover's model, should at once be impressed with the idea that the application of the discharge plate to his own invention would be an improvement upon it. It is therefore believed that Morgan is clearly entitled to a date in October, 1878, for his conception of the matter in issue. Indeed this much is conceded by counsel for Daniels in the brief which they have filed.

Recurring to the testimony of Morgan himself, it appears that about March, 1879, he went to Daniels and directed him to make drawings for a reel, with a lifting platform operated by a hydraulic cylinder and piston; that such drawings were made under his direction and supervision and chiefly in accordance with his design, the only feature not designed by him being one in connection with the hydraulic mechanism and foreign to this issue. Daniels at this time was chief draftsman for the Washburn & Moen Company, of which Morgan was superintendent, and was under his direc-
317 tion. The drawings which he made are offered as Morgan's Exhibit 5, and a reel substantially such as it illustrates was made and tested in the fall of 1879 as the works of the company. This test was not a success. It also appears that nothing further was done by Morgan until 1886, when he had other drawings made in which the construction in issue was embodied and reels in accordance with them were made and tested in May, 1886; that this test was satisfactory, and that they have been in use ever since. It thus appears that Morgan has followed up his conception of 1878, to a successful reduction to practice in 1886, and that he is entitled to priority of invention, unless it appears that Daniels is entitled to an earlier conception, and has with reasonable diligence also reduced his invention to practice, or unless it be proven that though later to conceive he reduced to practice before Morgan did, and that he (Morgan) has failed to use reasonable diligence in doing so.

As before stated, it is believed that Daniels has failed to establish an earlier date of conception. But even admitting that he has done so, what has he since accomplished? Four sketches are introduced as Exhibits Daniels Sketches 1, 2, 3, and 4, the first two of which are alleged to have been made on Nov. 5, 1878, the third on Feb. 12, 1879, and the fourth on Jan. 18, 1879. He also introduces a drawing as Exhibit Drawing No. 1. This drawing is the same that Morgan has offered as Exhibit Morgan No. 5. He states that he made it in March or April, 1879. As to this there is no controversy; but Daniels insists that he made it from ideas of his own and without suggestion from Morgan, and according to plans which he had previously explained to them; that after it was completed Morgan looked it over, "criticised the framework and manner of connecting the top box to the wooden frame," and made a suggestion as to how the top should be made; that in October, 1879, complete working drawings were made and work commenced on a machine at the Washburn & Moen Company, which was completed and tested soon after; that the test being unsatisfactory it was taken down, put aside, and nothing further was done with it as then constructed; that he then made new drawings to overcome the difficulties encountered, which were put into the hands of pat-
318 tern-makers, and castings were made and partially finished with a view of building a reel; "but this result was never brought about."

It does not appear that he did anything further until August, 1885, when Washburn, the vice-president of the company, ordered the construction of two automatic reels in accordance with his plans. It appears that at this time Morgan had severed his connection with the company. Soon after work was commenced upon them he was again employed as superintendent, and upon learning what was being done countermanded the order and put draftsmen at work upon plans of his own, from which reels were constructed in 1886, which after several experimental tests we finally constructed so as to be successful and satisfactory in their operation.

From this testimony it appears that there is no substantial conflict in the statement of the two parties, except as to the making of the drawing early in 1879, shown in Daniels' Exhibit 1 and Morgan's Exhibit 5. As to this exhibit Daniels testifies that it was made by order of Morgan, but from plans which he (Daniels) had previously explained to him, and that it embodied his own conception. Morgan, on the contrary, states that the construction illustrated in them was his conception, that the drawing was made under his direction and supervision and in accordance with his own design so far as this issue is concerned.

Even admitting that Daniels' statement in regard to it is the true and correct one, and that he was carrying out and developing an invention which he had conceived in July, 1878; that the reels constructed in 1879, and which proved a failure, were made in accordance with his plans, what else has he done towards reducing his invention to practice?

While it appears that after this unsuccessful test new drawings

were made in the fall of 1879, no machine in accordance with them was built. From this time forward nothing was attempted by him until 1886, when he proposed to build reels in accordance with his plan, but was prevented by Morgan exercising his authority as superintendent. Admitting this to be true, it presents no excuse for his delay in applying for a patent. Even if he were unable to construct a reel himself, and was compelled to forego work upon one at the mills of the company through Morgan's intervention, and
319 was thus prevented from completing it, he was not hindered in any manner in coming to the office with his application. A reel was not completed from the drawings after the first failure, owing to press of other work, and if the invention was his it was very easy for him at that time, or at any time during the succeeding years, to have protected his rights by filing an application. Even after Morgan had prevented the building of a machine in 1885, by issuing his order, and when it was certainly apparent to him that Morgan was his rival, he took no steps to file an application, but stood by and saw him complete a machine after his own plans, and in which the construction in issue was embodied, without uttering a word of complaint, and it was only after it was satisfactorily tested and after Morgan had filed his application, that he deemed it necessary or expedient to present himself before the office.

It is in evidence, that in 1883 and the years following, he obtained eight patents at his own expense, which he afterwards sold for twenty-five hundred dollars. If he believed himself to be entitled to the invention in issue, it is, to say the least, a little singular that he should not have pursued the same course with it that he did with his other inventions. Even conceding that his conception was in July, 1878, that the 1879 drawings were his own plans and made without suggestion from Morgan, his subsequent laches and want of diligence must be fatal to his claim of priority. But the examiner is no better satisfied with a conclusion which concedes that Daniels' statement as to the 1879 drawings is the true and correct one, than he is with a conclusion that concedes a date of conception by him prior to that of Morgan. On the contrary, he is of the opinion that Morgan's statement is entitled to the greater weight, for it is to be borne in mind that it has been clearly proven that in the previous fall Morgan had a full conception of the matter in issue and had explained it to Stover, while it has not been shown by any satisfactory evidence that Daniels, previous to the time of making the drawing, had any idea or conception of the construction involved. A great deal of testimony has been presented, tending to show the confidential relations that for many years existed between Morgan and Daniels during their employment as superintendent and chief draftsman, respectively, by the Washburn & Moen Company;
320 that before and during this time Daniels was a protégé of Morgan's, that he took a lively interest in his welfare, and promoted and advanced him rapidly, treating him in a measure as his own son; that Daniels never thought of claiming the invention as his own, until after Morgan's relations with the company had become strained, and their interests antagonistic, and that it was

only at the instigation of the company that he asserted his title to it as against Morgan, and that the company is paying all of the expenses of this contest. These matters, however, it is unnecessary to consider.

Upon a review of the whole case, the examiner is of opinion that Morgan was the first to conceive, the first to disclose to others, and the first to reduce to practice the invention in issue. With such a showing as this, and being also the first to file an application, he certainly is entitled to priority of invention, and judgment is accordingly awarded to him. Limit of appeal from this decision will expire June 25, 1888.

WALTER JOHNSON,
Examiner of Interferences.
W. W. ORRICK,
Assistant Examiner.

June 5, 1888.

321 *Decision of Examiners-in-chief.*

Before the examiners-in-chief.

In Re Interference MORGAN *v.* DANIELS.

Improvement in Mechanism for Coiling Wire Rods.

Mr. C. H. Burleigh for Daniels.
Mr. Anthony Pollok for Morgan.

This is an appeal from the decision of the examiner of interferences, awarding priority of invention to Morgan upon the following issue:

"In a device for coiling wire or wire rods the combination with a rotating coiling receptacle or reel for receiving and laying in coils the rod as it is delivered from the rolls of a spider or platform for supporting the coil, mounted on a vertical shaft, concentric with the reel-supporting shaft, and means for elevating the platform shaft independently of the other."

This controversy is over a discharging reel for wire rods which was completed and put into successful operation in the mills of the Washburn & Moen Manufacturing Company at Worcester, Mass., early in the spring of 1886. Each one of the parties to this proceeding claims to have invented this reel, and the determination of the contest depends chiefly upon the answer to the question who was the first to conceive.

Morgan does not claim to have conceived the invention until October, 1878. Daniels on the other hand claims to have conceived earlier in the same year, and in July, 1878, to have disclosed by means of sketches to Fowler and Lambert. Fowler testified to a disclosure made to him by Daniels, July 20, 1878, fixing the date by an entry on his diary of a visit made to him by Daniels. This disclosure is clear as to the reel and the lifting platform, but fails in

the exact means for supporting and raising the platform. It,
322 however, fairly shows that Daniels had in mind at that time the leading feature of the invention.

Lambert's description of the matter disclosed to him is precise and his testimony is clear that within a few weeks of Daniels' return from Europe, which was on July 1, 1878, he fully disclosed the matter in controversy to Lambert. There is in evidence a model made by Lambert in 1886, which exactly represents the invention, and which was made by Lambert from his recollection of what Daniels had disclosed to him in 1878. From the lapse of time between Daniels' disclosure and the making of the model it is sought to discredit Lambert, but he was not shaken on cross-examination and declared his ability to make from memory models of devices, drawings of which he has seen within eight or nine years. He also fully details the circumstances under which he made the model, which it may be well to state in his own language.

"He (Daniels) came down to the shop and asked me if I remembered the time he showed me a sketch for a reel in the old shop. I told him I did, and says he, 'Can you make me a model of it now?' I told him I could. Says I 'Do you want a nice one?' He says, 'Make it as nice as you can.' Says I, 'Where is your sketch?' Says he, 'I have none.' Says he, 'I want you to make it as you remember it, no more and no less, make it just as you remember it and let me have it;' and I made that." (Exhibit Lambert's Model.)

It is sought to show that Lambert confused this early recollection with the completed reel set up in the shop; but there is nothing in the record to justify this and we think Lambert's testimony fully corroborates Daniels as to a disclosure to him in July or August, 1878.

Although we are satisfied that Daniels' conception and disclosure were prior to any conception set up by Morgan, it may be well to consider here just what that alleged conception was.

It appears that in October, 1878, Daniel C. Stover was at the works of the Washburn & Moen Company. His attention was at that time directed to an old method of rolling wire rods and its defects. He therefore conceived the idea of a reel upon which the rods could be wound directly upon coming from the rolls. One of the features of this reel which was mounted upon a horizontal
323 axis was a movable discharging disk somewhat similar to that one embraced in the issue. Stover's apparatus was afterwards patented and the patent is in evidence, No. 219,124.

Upon seeing this discharging disk Morgan told Stover that he could use it in connection with a reel which he (Morgan) had invented, meaning the reel shown in Morgan's patent 220,300 in evidence.

It appears, however, from an examination of this patent that the reel shown there is not at all the kind of reel involved in this dispute. It is nothing but the old so-called traction reel, in which the rod was coiled on the outside of the pins, and was not what is technically called a pouring reel into which the rod flows and is coiled within the outer wall and the pouring reel, being the only one em-

braced in this issue. Morgan's conception, therefore, when he saw Stover's device was not at all of the invention in controversy. It was only that he could combine a discharging disk with a reel mounted on a vertical axis.

The next step we are called upon to consider in the progress of the invention was the making of the first working drawing. This was in March or April, 1879. Both parties agree that this drawing was made by Daniels, but their stories differ as to who furnished the ideas it embodied. Morgan says that it was made by his direction to carry out his previously formed conception. Daniels, that after an unsuccessful trial was made with certain removing tongues invented by Morgan and shown in his patent 220,300 he went to Morgan and showed his discharging device. Morgan therefore directed him to make this drawing, suggested some trifling alterations after it was completed, to comply with which Exhibit Daniels' Drawing 2 was made.

That Daniel's version of this matter is the correct one follows naturally from our conclusion that he had a former conception while Morgan had not, and this view is strengthened by the fact that Morgan had before this order was given experimented with other devices and failed.

To follow up the progress of the invention, we find that after this drawing, Exhibit Daniels' Drawing 1, was finished, it was shown Morgan, who suggested an improvement in a point not relating to the controversy, whereupon another drawing, Exhibit 2, was
324 made. A reel was afterwards built after this drawing, and tested; but certain difficulties were found in its operation, and it was set aside. A new drawing was made, Exhibit 3; but no reel was built from it then, and from early in 1880 until 1885 nothing more was done by either party.

In July, 1885, Morgan resigned his position as superintendent of the Washburn & Moen Manufacturing Company, and in August orders were given again to begin work on the reels. In September, 1885, however, Morgan resumed his position as superintendent, and *and* the order was countermanded. Subsequently, Morgan had drawings made, and from them new reels were made, experimented with, and perfected, until finally, in May, 1888, the invention was successfully reduced to practice.

Because this reduction to practice was made by Morgan, it is sought to charge Daniels with lack of diligence; but it must be remembered that Morgan was acting in his official capacity as superintendent of the works, and that Daniels was a subordinate; and it does not appear that Daniels had any reason to suppose he was claiming the invention as his own. It is also said that if Daniels had thought himself to be the inventor, he could at any time have applied for a patent; but this, for the same reason, he was under no obligation to do. He did not know, he says, that Morgan claimed to be the inventor; denied that he was until he received notice of the interference proceeding. Under these circumstances we do not see how Daniels can be charged with negligence.

There is much testimony in the case as to the peculiar relations

existing between Morgan and Daniels, and as to sundry other matters which have no special relevance. it is not thought necessary to discuss this in detail. From all the evidence in the case we are satisfied that Daniels, and not Morgan, is the real inventor of the subject-matter of this controversy.

The examiners of interferences' award, priority of invention to Morgan, is hereby reversed, and priority awarded to Daniels.

ROBT J. FISHER, JR.
H. H. BATES,
Examiners-in-chief.

Third member absent.

325 *Decision of Commissioner Hall.*

U. S. Patent Office.

DANIELS
v.
MORGAN.

Mechanism for Coiling Wire Rods.

Appeal from examiners-in-chief.

Application of Fred. H. Daniels, filed June 26, 1886, No. 206,323.
Application of Chas. H. Morgan, filed June 24, 1886, No. 206,099.

Mr. Chas. H. Burleigh for Daniels.
Mr. Anthony Pollok for Morgan.

Morgan appeals to the Commissioner from the decision of the examiners-in-chief, awarding priority to Daniels. The subject-matter involved in the interference is embraced in the following issue:—

"In a device for coiling wire or wire rods the combination with a rotating coiling receptacle or reel for receiving and laying in coils the rod as it is delivered from the rolls of a spider or platform for supporting the coil, mounted on a vertical shaft, concentric with the reel-supporting shaft, and means for elevating the platform shaft independently of the other."

Daniels being the junior applicant, the burden devolves upon him to establish a date of invention prior to that of Morgan, or to overcome Morgan's record date by a fair preponderance of the testimony. Before passing to a consideration of the evidence of record, it may be well, perhaps, to consider what seems to me to be the gist of the invention involved in this interference. I do this for the reason that some uncertainty has existed as to what the issue really involves, and I am inclined to think that this uncertainty has probably led the examiners-in-chief to a decision different from that of the examiner of interferences.

326 The issue, as I understand it, comprehends simply a combination between a vertical coiling and rotating reel and a lifting platform or spider, mounted on a vertical shaft concentric

with the reel-supporting shaft, and, as I view it, it is immaterial for the purpose of the issue whether the reel has two sets of arms or has a peripheral rim.

The interference exists between the seventh claim of Daniels and all the claims of Morgan; and after a careful reading of these claims, I am convinced that the view I take of the issue is the correct one.

The state of the art when these applicants filed their applications shows, in Morgan's patents No. 220,300 and No. 224,941, vertical reels having one or two sets of arms. In patent No. 224,941, application filed February 20, 1879, Morgan alludes to a so-called tub reel, and states that there was then pending a joint application of himself and Daniels for a reel having one set of arms and an outer case. An English patent to Daelen, No. 4897 of Nov. 30, 1878, sealed May 27, 1879, shows a tub reel. So at the time the original applications out of which grew the interference herein were filed, neither the vertical tub reel nor the vertical reels having one or two sets of arms were in themselves new, and in order to be patentable must have been combined with some element new in itself or with a new combination of elements. What these parties then were striving to obtain, after the dates of the patents referred to above, was a combination which involved the use of these old forms of reels with a device which would raise the coil of wire off the reels by means of a shaft concentric with the reel-supporting shaft and operating by hydraulic action below it, in combination with the platform or spider mounted upon the shaft enclosed in the reel-supporting shaft.

With this understanding of the issue I will now proceed to review the testimony. The opinion of the examiner of interferences is an exhaustive review of the entire record, and I do not deem it advisable, in this opinion, to set out at length the testimony again; it is sufficient to say, the conclusions of the examiner of in-ferences seems to be warranted by the facts; but proceeding briefly to the consideration of the record. Daniels alleges conception in July, 1878, and attempts to corroborate his own evidence by the testi-
327 mony of Fowler, Lambert, and Hemenway. All of that part of Daniels' testimony which tends to prove acts or declarations made by him while in Europe relating to the invention in controversy cannot be considered under well-established rules of the office. (See Green *v.* Hall, *v.* Siemens, *v.* Field, 46 O. G., 1515.) Daniels testifies that in July, 1878, he made drawings and showed and described them to Fowler; he has made no attempt, however, to introduce these sketches in evidence nor to give any explanation why they have not been introduced. The personal recollections of this witness, Fowler, as to what he saw or what was described to him in the sketch are at most vague and unsatisfactory and offer but slight corroborations of Daniels, if any. What the sketch contained, which one of the many devices for reels was at that time being investigated and experimented with, the office is unable to say, but it may be said that if the sketch shown Fowler was no

clearer than the sketches offered in evidence by Daniels, being Exhibits 1, 2, 3, and 4, there is abundant reason why Fowler does not remember what he saw in the sketch of July, 1878.

Daniels then relies upon one Lambert to support the July, 1878, date. The testimony of this witness is not of a kind to warrant a strong belief in its accuracy. He states that some time in July, 1878, after Daniels had returned from Europe, a sketch was shown him involving some kind of a tub reel, and that Daniels asked him to make a model from it. Owing to lack of time, or some other reason, no model was made then, but in 1886, eight years afterward, Lambert swears that he made a model from his recollection, aided by his own judgment, involving the very identical device illustrated by this sketch. This is a most remarkable feat of memory, and, without commenting at length upon Lambert's certainty of remembrance, it is enough to say that it is doubtful whether in any aspect of the case this model is competent evidence; but considering it for what it is worth it has but little weight. I am strongly of the opinion that this model was the result of the more vivid and recent impressions derived by Lambert from his association and familiarity with the employees and machinery in the Washburn & Moen works. He probably saw almost daily the full-sized machine
328 which was placed in the factory by Morgan, and in attempting to reduce the sketch or embody it in the form of a model, he unconsciously used the form and general features of machines with which he was familiar. What he means by saying he used his judgment in the building of this model would seem to warrant the conclusion I have reached, that it was a judgment derived from an inspection of the actual operative machines then in existence when the model was built. It must not be forgotten either that Lambert had been for years before the model was made an employee of Daniels, the effect of which association could not but be that his memory would be refreshed and his remembrance stimulated favorably to Daniels.

The testimony of Hemenway affords no support to the July dates set up by Daniels, and only in a very vague way of any disclosure made to him by Daniels. No disclosure was made to Hemenway of any reeling device prior to January, 1879.

Without reviewing the corroborating testimony further, I am strongly inclined to the belief that Daniels' date of July, 1878, has not been supported; but giving his testimony all the weight to which it is entitled it seems to me that the first proven act of Daniels tending to show a conception of the issue in controversy was the act of making the drawing in March or April, 1879, for the machine which was afterwards built. That Daniels made these drawings is conceded; but Morgan testifies that he gave directions to Daniels to make them. Daniels denies this, and testifies that the devices involved in the drawings were his own conceptions. Here is the embarrassing part of this controversy; contentions between employers and employees are always so, and very often no satisfactory conclusion can be arrived at.

Allowing Daniels all the weight he claims for his statements

about this particular fact, and considering his statements squarely denied by Morgan as fairly set off, one against the other, I proceed to a consideration of the testimony of the witness Stover, who, to my mind, supports Morgan's theory of this controversy. Stover was a mechanic of conceded ability, and perfectly disinterested. He testified that he was at the Washburn & Moen factory in October of 1878, and while there invented the device which is in evidence for lifting or pushing off the wire coil after it had been deposited upon
329 the arms of a horizontal reel. During the time he was there he became, of course, friendly with Morgan, and in mutual consultations about machines in which they were both interested. Morgan showed him two models of automatic reels, which were afterward patented to Morgan; patents Nos. 220,300 and 224,941, respectively. These models were explained to Stover by Morgan with the added suggestion that if he (Morgan) could combine the lifting spider or platform of Stover's device with his reel, its value would be much enhanced. There is no question but that from this time Morgan proceeded to utilize Stover's device in combination with his own reels. At that time the evidence clearly shows that Morgan's mind had reached a positive conclusion as to the intrinsic value of the Stover lifting device in combination with reels which are conceded to have been Morgan's invention. Now, Daniels was present at this interview, which took place at a time when Morgan and Daniels were on the most friendly terms. He saw Morgan's models, he heard the question discussed of the valuable addition of Stover's lifting platform to Morgan's inventions, and it is fairly to be assumed that if he was the intelligent and bright mechanic which the record seems to show him to have been, he would participate in this conversation.

In view of the friendly relations between these two men at that time, it is scarcely credible to suppose, in a matter in which both were cordially coöperating, and which was of such paramount value and importance to their employers, that if Daniels really had at that time a conception of the invention, he would not have disclosed it to Morgan. It is remarkable also that the draftsmen and immediate associates of Daniels never had their attention called to this invention by Daniels as being his own conception. There was no rivalry at that time between any of the employees of Washburn & Moen in any kind of invention, so far as I have been able to discover; and if Daniels had invented this valuable thing, it seems to me he would have disclosed it to those who were nearest to him. The witness Hemenway, it is true, testifies that some time in January, 1879, Daniels described to him some kind of a tub-reel device, but gives no specific description of it. The effect of this disclosure, however, is weakened by the fact that it was after Daniels heard the conversation between Morgan and Stover in the previous
330 October. It is also difficult to see why, if Daniels appreciated the value of this device, which he says he conceived in July, 1878, he did not call the attention of his employers, Messrs. Washburn & Moen, to it. Again, when the matter was fresh in his mind, he discussed it with his friend, Mr. Bedson, of England, and in that

no intimation of the tub-reel feature is alluded to; but instead, as far as Daniels' letter of inquiry of Oct. 6, 1886, is concerned, the method seems to have consisted in passing a hot rod between the spokes of a revolving reel. This is the identical device of which Scott swears he made drawings under Morgan's directions in July, 1878 (p. 106, Morgan's Record).

Again, Daniels, in his letter to Angstrom, of Oct. 22, 1886, assumes in a very bold and leading manner that he invented the reel in controversy in July, 1878; but Angstrom squarely denies this. In his letter to Danielson of Oct. 6, 1886, Daniels refers to a reel having spokes, and claims to have invented that in January, 1878, but Danielson in his letter of Nov. 29, 1886, in reply fails to remember any such thing. Now, both Angstrom and Danielson were fellow-draftsmen of Daniels, intimately associated with him in the Washburn & Moen works in 1878.

So then we have Daniels, as late as 1886, as shown by these letters, uncertain in his own mind what he invented, whether it is a spoke reel or a tub reel, and if he finds corroboration at all for anything it is for a reel having spokes, but this form of reel he manifestly obtained from Morgan, for Morgan is conceded to be the inventor of the spoke reel. Another thing is strongly against Daniels: he testifies that he disposed the invention in controversy to Angstrom, who was then a fellow-draftsman with him; but Angstrom testifies that he himself disclosed the tub-reel feature to Daniels, by calling his attention to the English patent to Daelen.

I feel warranted, therefore, in holding that the witnesses named by Daniels, and who were relied upon to corroborate him, and who were the closest to him, both socially and professionally, have failed to corroborate his statements. As to the working drawings made in March or April, 1879, the facts clearly warrant the conclusion reached by the examiner of interferences, viz: that Morgan directed Daniels to make them from ideas disclosed to Daniels by
331 Morgan. In doing this Morgan simply followed up the intention as expressed to Stover in October, 1878. These drawings were followed by diligent reduction to practice by Morgan.

I have attempted to review the evidence fairly which in many respects is conflicting and confused by the unfortunate and unfriendly relations of Morgan and Daniels, and I am forced to the conclusion that the first to conceive and the first to reduce to practice the invention in controversy was Morgan, and that he is the first and original inventor. The decision of the examiners-in-chief is therefore reversed.

BENTON J. HALL,
Commissioner.

March 22, 1889.

332 *Decision of Commissioner Mitchell.*

United States Patent Office.

DANIELS
v.
MORGAN.

Mechanism for Coiling Wire Rods.

Motion for rehearing.

Application of Fred. H. Daniels, filed June 26, 1886, No. 206,323.
Application of Chas. H. Morgan, filed June 24, 1886, No. 206,099.

Mr. Chas. H. Burleigh for Daniels.
Mr. Anthony Pollok for Morgan.

This is a motion by Daniels for a rehearing. The decision complained of was rendered by Mr. Commissioner Hall. A motion to dismiss for want of jurisdiction has already been heard, and denied.

Daniels *v.* Morgan, 47 O. G., 811.

The errors assigned are nineteen in number. They may be grouped as follows: 1 and 2, misapprehension and misconstruction of the issue; 6, 7, 8, 9, and 10, errors in connection with Morgan's and Stover's testimony, upon which the Commissioner based his conclusion that Morgan's date of conception was October, 1878; all the other allegations of error relate in one form or another to supposed mistakes in disregarding or misapprehending or excluding or improperly weighing the testimony in the case.

The question is whether manifest errors of law entered into the former decision (Green *v.* Hall, *v.* Siemens, *v.* Field, 47 O. G., 1631), and if so whether the correction of such errors would necessitate a decision in favor of Daniels.

333 The controversy relates to the art of manufacturing wire and wire rods. The issue includes a reel mounted upon a vertical shaft, in combination with a lifting platform or spider and means for operating the spider independently of the reel. The reel coils the wire or wire rods as they come in a heated condition from the reducing rolls. Two kinds of reels are made prominent in the discussion of the case: "traction" reels and "pouring" reels. Counsel for Daniels contends that the issue is limited to combinations containing the latter.

The first two assignments of error aver that the Commissioner misapprehended the issue and construed it incorrectly in that he did not limit it to a combination containing a pouring reel. I find the statement, near the beginning of the opinion, that it is immaterial "for the purposes of the issue whether the reel has two sets of arms or has a peripheral rim." If I am right, however, the case discloses *on* reel with two sets of arms that is not a pouring reel,

nor does it show or describe a traction reel having a "peripheral rim," so that thus far there is no departure from the issue as understood by counsel for Daniels. Further on in the opinion attention is directed to the fact that Morgan's patent No. 224,941 shows a vertical reel having two sets of arms, and declares that a reel having one set of arms and an outer case is shown in a pending joint application of Morgan and Daniels. The joint application thus referred to matured into patent No. 224,942, and that it shows a pouring reel is conceded on page 8 of brief for Daniels, used before the examiners-in chief. Again, an English patent to Daelen, No. 4897 of 1878, showing a tub reel, is referred to in the opinion. Here, then, are two forms of pouring reels, one form having two sets of arms, the other having one set of arms and an outer case or peripheral rim, and if the Commissioner intended to include these forms of reels only in the issue, Daniels has clearly had no cause for complaint even upon his own theory.

There is, however, to be found, still further on, certain language which seems to imply that the use of a traction reel having a single set of arms, as well as a pouring reel when used in connection with a properly mounted spider and means for elevating it, would come within the issue. If the Commissioner is to be assumed to
334 have so held, the question raised by the allegation of error is an open one, to be disposed of either by ascertaining whether the Commissioner's view was right, or by ascertaining whether the view which he took was material to the conclusion reached. A correct conclusion upon these questions can probably be best reached by considering at this stage the second group of supposed errors.

The second group of supposed errors includes those alleged to have been fallen into in connection with Morgan's and Stover's testimony (6, 7, 8, 9, and 10). The claim is made that there is nothing whatever that tends to show that Morgan ever conceived the invention in controversy when the issue is properly construed; that is to say, when construed so as to exclude a traction reel. The former Commissioner finds that Morgan showed Stover, in October, 1878, "two models of automatic reels which were afterward patented to Morgan, patents Nos. 220,300 and 224,941, respectively." The reel of the latter patent was confessedly a "pouring" reel, and if, as the Commissioner finds, Morgan had the conception in October, 1878, of combining the Stover lifting spider or platform with the reels of these two models in such a way as to show the issue, then he must have had a conception of the invention when construed as counsel for Daniels believes it ought to be construed, because, as has been said, the reel of patent No. 224,941 is a "pouring" reel. Although I am not able to find that Stover refers to the reel of the latter patent with any considerable definiteness, yet Morgan testifies that both models, which are clearly proven to have been in existence, were considered in connection with the conversation with Stover, and the Commissioner finds that,

"These models (patents Nos. 220,300 and 224,941) were explained to Stover by Morgan, with the added suggestion that if he (Morgan)

could combine the lifting spider or platform of Stover's device with his reel, its value would be much enhanced. There is no question but that from this time Morgan proceeded to utilize Stover's device in combination with his own reels."

Here, then, is a specific finding that from and after October, 1878, Morgan had a conception of the combination of the vertically mounted lifting spider and the pouring reel of patent No. 224,941.

This is the supposed invention embraced in the issue as it is
335 construed by Daniels, and it is therefore immaterial, at least so far as fixing the date of Morgan's conception of the invention is concerned, which interpretation is the correct one. Unless, therefore, the Commissioner finds that the same invention was conceived by Daniels at an earlier date than October, 1878, or in finding the contrary, ignores all the substantial testimony in the case, then the decision was properly in favor of Morgan, whichever construction of the issue may be taken to be the proper one.

Upon the question of Daniels' date of conception the Commissioner says:

"Without reviewing the corroborating testimony further, I am strongly inclined to the belief that Daniels' date of July, 1878, has not been supported; but giving his testimony all the weight to which it is entitled, it seems to me that the first proven act of Daniels tending to show a conception of the issue in controversy was the act of making the drawings in March or April, 1879, for the machine which was afterward built."

Up to this point, then, it appears that the Commissioner found, with some evidence, at least, to sustain him in the finding that Morgan conceived the invention in issue, whichever theory of interpretation is adopted, in October, 1878, and that he also found that Daniels' date of conception must be taken to be not earlier than March or April, 1879. This brings up the question whether the whole body of the pertinent evidence shows that Daniels is entitled to an earlier date. If there was evidence in any form upon both sides of this question, it will be conceded that the Commissioner's conclusion upon this point is not reviewable.

This question may be considered in connection with all the alleged errors other than those heretofore considered. Daniels claims to have made the invention as early as July, 1878, and so testifies. As we have seen, the date fixed by the Commisssioner as the earliest possible date of Daniels' conception was, in his judgment, March or April, 1879. His refusal to accept the earlier date was based upon the subsequent conduct of Daniels, including his failure to claim the invention when he might have claimed it, and ought to have claimed it, if he were the real inventor; upon the failure of those "who were the closest to him, both socially
336 and professionally" to corroborate his statement, and upon numerous other facts set forth in the evidence, which, when placed in the scale, caused the balance to turn in favor of the opinion that Daniels did not make the mental invention at the time claimed by him, but that he made it, if at all, at a date later than October, 1878, the date of Morgan's conception.

As has already been said, error in weighing evidence is not reviewable, and it is impossible for me to say that, in determining whether a certain fact existed more than a decade ago, upon a very considerable array of evidence, there were no evidential facts and circumstances entitled to consideration which were contradictory to the claim of Daniels. I must therefore hold that there was no reviewable error in refusing to find as a conclusion of fact that Daniels made the invention at an earlier date than the one conceded to him by the Commissioner.

I am aware that it is claimed that the Commissioner erred in disregarding the testimony of Fowler and Lambert, but it does not appear that he disregarded it in any other sense than that he refused to give it paramount weight. I am also aware that it was claimed to be an error to exclude the acts and declarations of Daniels in Europe; but I do not understand that the Commissioner intended to do more than apply to such acts and declarations the principles laid down in the case to which he referred. I also note the claim that the Commissioner erred in finding that Angstrom denied Daniels' statement in the letter of Oct. 22, 1886. Angstrom denied disclosures to himself in November, 1878, which, for all the purposes of the case, is substantially the denial found by the Commissioner. So, too, with the various other allegations of the motion averring that the Commissioner misappre-nded the testimony or failed to give proper weight to various facts alleged to be undisputed. I have examined them severally, and endeavored to assign to each the importance to which it is entitled. As to each of them it may be said that it either has an unsubstantial foundation in fact, or that it relates to that class of errors which so long as human infirmity exists, must to a greater or less degree enter into the judicial process of weighing testimony.

The salient facts of the case stand out with prominence.
337–339 The Commissioner found as a fact that Morgan conceived the invention in October, 1878, and there was testimony in the case which, if his judgment of its weight was warranted, justified that conclusion. He found as a fact that Daniels did not conceive the invention earlier than March or April, 1879, if, indeed, he conceived it at that time, and there was evidence which, if his judgment of its weight was warranted, also justified that conclusion, and these facts being thus found, there was no error in the ultimate conclusion that Morgan was the first inventor. Minor misapprehensions there may have been, but none of them seem to have been material to the result reached, nor would a correction of them, if, indeed, they existed, involve a reversal of the decision, unless I should go further and unwarrantably undertake to overthrow those conclusions of the Commissioner which resulted from weighing testimony.

It results that it is immaterial which interpretation of the issue was adopted by the Commissioner, and that for the reasons set forth the motion must be denied.

C. E. MITCHELL,
Commissioner.

Oct. 28, 1889.

341 CHARLES H. MORGAN PATENT NO. 416,940, MADE PART OF DEFENDANT'S ANSWER.

UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, of Worcester, Massachusetts.

Reeling Mechanism for Wire-rod-rolling Mills.

Specification forming part of Letters Patent No. 416,940, dated December 10, 1889. Application filed June 24, 1886. Serial No. 206,099. (No model.)

To all whom it may concern:

Be it known that I, Charles H. Morgan, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful improvement in reeling mechanism for wire-rod-rolling mills, which improvement is fully set forth in the following specification.

This invention has reference to the construction of reeling mechanism for use in wire-rod-rolling mills; and its object is to improve such mechanism with a view to facilitating the operation of removing from the reel the rod that has been coiled thereon after passing from the furnace through a train of reducing-rolls.

It has been proposed heretofore in the operation of wire-rod rolling to conduct the rod after passing successively between the pairs of rolls constituting a continuous train to a reel having a vertical axis and rotating at such speed as to call up the rod as fast as delivered from the last rolls of the train, and then, after stopping the reel, to remove the rod by introducing a pair of tongs into the reel and lifting the coil of wire therefrom.

In order to enable the operation of removing the rod to be performed with greater ease and rapidity, and thus to save time in the operation of wire-rod rolling, I propose to construct the reel so that as soon as the rod has been deposited therein it can be lifted clear of the vertical walls or periphery of the reel and held in this position until seized by the tongs and carried away. To accomplish this purpose, the platform or frame upon which the rod is laid in coils and the vertical walls or pins forming the periphery of the reel are so constructed that one can move vertically independently of the other, so that after the rod is deposited either the platform with the rod thereon can be raised clear of the walls or pins or the latter can be dropped, leaving the rod in convenient position to be grasped by the tongs.

The invention may be carried out as follows: The reel is constructed with two platforms, the lower one carrying the vertical pins or walls of the reel and being supported on a hollow shaft, to which rotation is imparted by suitable gearing. The upper platform has a spindle inclosed in said hollow shaft and is free to move vertically independently thereof. When the rod has been deposited and the

reel brought to rest, the spindle and platform can be lifted clear of the walls of the reel, and in this position the coil can be readily seized by the workman and carried away. When the rod has been removed, the upper platform can be lowered to its normal position and the reeling of the next rod can proceed with little delay. Any suitable devices or means can be employed to raise and lower the platform. Preferably the spindle is connected with a pneumatic or hydraulic piston, by means of which power is applied at the proper moment to raise the spindle and platform carried thereby. Means are provided whereby the reel can be stopped promptly when the rod has been deposited, and put in motion again when the reeling of the next rod is about to begin.

(Here follows diagram marked p. 340.)

In the accompanying drawings, which form a part of this specification, figure I is a plan view of a pair of reels constructed in accordance with the invention, the upper portion of one of the reels being removed; and Fig. II is a view partly in elevation and partly in vertical section, the planes of section being indicated by the broken line 11, Fig. I.

As the two reels shown are alike in construction, the corresponding parts have the same letters and figures of reference, and it will be understood that the following description applies to both reels.

A represents the lower platform of the reel mounted on a hollow shaft 1 and provided with the vertical pins or prongs *a*, forming the outer and inner walls of the reel, between which the rod is coiled. The shaft 1 has a bearing above in the cross-pieces 3, supported by the standards 2.

Shaft 1 has near its lower end a bevel-gear 4, which engages with a corresponding gear 5, mounted loosely on the main shaft 6. The latter is rotated by a driving-wheel 7, engaging with a gear 8, fast on said shaft. The collar 10 is so mounted on shaft 6 that it turns therewith, but can move lengthwise thereof. It carries a friction-clutch 9, adapted when the collar is moved in the proper direction to engage the loose wheel 5 and cause it to revolve, thereby rotating the reel. The clutch is operated by means of a vertical
342 & 343 lever 11, provided with a pin 12, which enters a groove in collar 10. The lever 11 is pivoted at 13 to the base of the frame-work. When the clutch is disengaged from gear 5, the reel is thrown out of action; but in order to check the momentum of the reel and bring it at once to rest it is necessary to apply a brake. To this end a band 14 is arranged to encircle a collar 15, depending from the bottom or platform A of the reel. The ends of this band are connected with a two-armed lever 16, secured to a vertical rock-shaft 17. The latter is connected by an arm 18 and link 19 to a cross-head 20, pivoted to the vertical lever 11. Thus the lever is made to operate both the brake and the friction-clutch, simultaneously applying the brake and disengaging the clutch, and *vice versa*. The lever 11 might be operated by hand or by any desired mechanism. As shown, the cross-head 20 is connected with

(No Model.)

C. H. MORGAN.

REELING MECHANISM FOR WIRE ROD ROLLING MILLS.

No. 416,940. Patented Dec. 10, 1889

FIG. I.

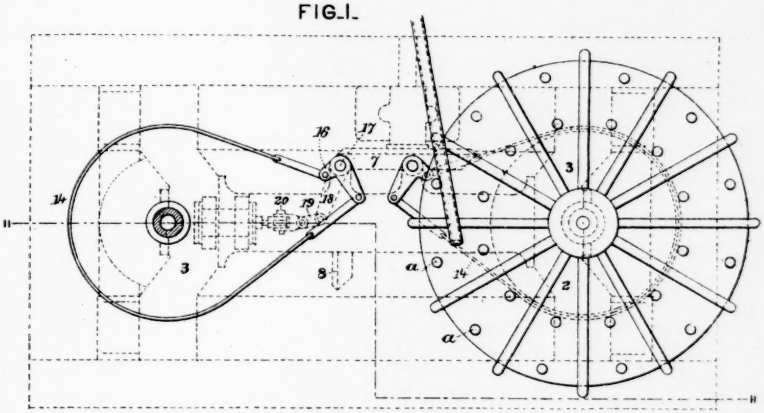
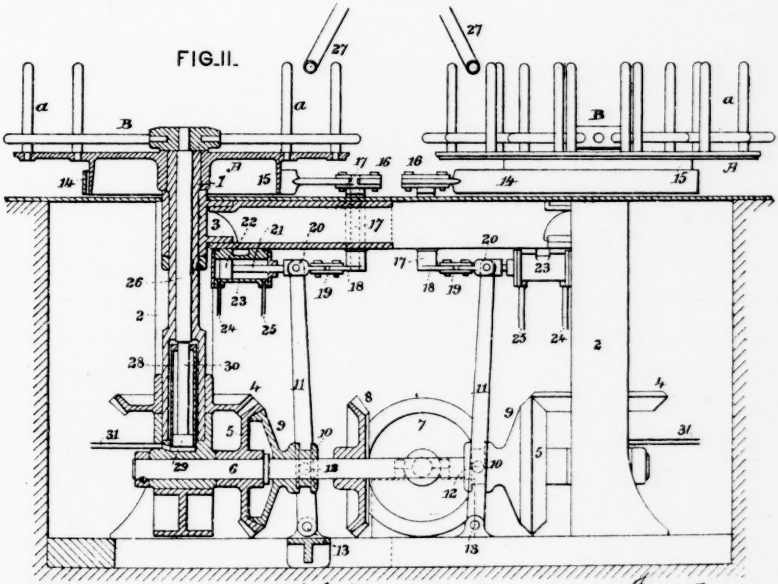


FIG. II.



Attest:
Geo. T. Smallwood.
Philip A. Mauro.

No. 313. Morgan } p. 340
Daniels.

Inventor
Charles H. Morgan by
A. Pollok his attorney.

the rod 21 of a hydraulic or pneumatic piston 22, working in a cylinder 23, provided with the inlet and outlet pipes 24 25.

Within the hollow shaft 1 of the reel is a spindle 26, which supports the upper platform B, upon which the rod is deposited as it enters the reel from the guide-pipe 27. The platform B is so constructed and mounted that it can be lifted independently of the platform A, so as to raise the coil of wire rod clear of the pins or prongs *a*. The platform B may be of any construction suitable for this purpose. As shown, it consists of a number of spokes radiating from a central hub and passing between the vertical pins or prongs *a*.

Any appropriate means may be employed to lift the platform B; but preferably this is done by hydraulic or pneumatic devices, and such construction is shown in the drawings.

In the lower part of the shaft 1 is a cylinder 28, inclosing a piston 29, whose rod 30 abuts against the spindle 26. A pipe 31 supplies the motive fluid to the cylinder when it is desired to lift the platform B and the coil resting thereon.

In operating the mechanism shown and described the rod, as it comes from the rolls, is conducted by one of the pipes 27 to the corresponding reel. At the proper moment the operator, who may be posted at a safe distance from the reel, sets the latter in motion by opening the proper valve to admit fluid through pipe 25 to the cylinder 23, thus releasing the brake 14 and engaging clutch 9 and gear 5. The parts would then be in the position shown in the drawings. As soon as the rod is deposited the operator reverses the valves, so as to move the piston 22 to the other end of the cylinder, disengaging the clutch and applying the brake 14. The reel then comes to rest, and the next rod is fed to the other reel, and while it is being coiled the operation of removing the rod from the first reel is performed. To accomplish this, the operator admits the liquid or gaseous agent by pipe 31 to cylinder 28, lifting the piston 29, and with it the spindle 26 and platform B, until the latter is clear of the pins *a*. A workman then grasps the rod with his tongs and removes it. The platform is lowered, and the reel is then ready to receive another rod.

It will be obvious from the foregoing description that modifications may be made in the construction and arrangement of parts without departing from the spirit of my invention, and that parts of the latter may be used without others.

Having thus fully described my said invention and the manner in which the same may be carried into effect, what I claim is—

1. A reeling device for receiving and laying in coils the wire rod as it is delivered from a train of rolls, said reeling device being provided with a platform supporting the coil and capable not only of revolving with said reel, but also of being elevated independently thereof, so as to lift the coil above the periphery of said reel and permit its removal laterally, substantially as described.

2. In a reel, the combination of the upper and lower platforms mounted on concentric vertical shafts, gearing for imparting rotation to both said shafts, and means, such as indicated, for moving

one of said shafts lengthwise of the other, substantially as set forth.

3. The combination, with a reel comprising a platform supported on a revolving shaft and carrying pins or prongs within or between which the rod is coiled, of the upper platform comprising a hub and radiating spokes or arms extending between said pins, and means for lifting said platform clear of said pins or prongs and thus facilitating the removal of the rod, substantially as described.

4. The combination of the reel, its shaft, gearing for driving the same, a clutch for throwing the reel into and out of action, a brake, and an operating-lever connected both with said clutch and with said brake, so that the latter is applied when the former is released, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHAS. H. MORGAN.

Witnesses:
PHILIP MAURO.
C. J. HEDRICK.

349 CHARLES H. MORGAN PATENT NO. 416,941, MADE PART OF DEFENDANT'S ANSWER.

UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, of Worcester, Massachusetts.

Reel for Reeling Wire Rods.

Specification forming part of Letters Patent No. 416,941, dated December 10, 1889. Application filed April 29, 1889. Serial No. 308,949. (No model.)

To all whom it may concern:

Be it known that I, Charles H. Morgan, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful improvement in reels for coiling wire rods, which improvement is fully set forth in the following specification.

This invention has reference to reeling mechanism for receiving and laying in coils the wire rod as it is delivered from the last of a series of reducing-rolls, and has special reference to the discharging means for removing the coil from the reel.

In letters patent No. 224,941, granted to me February 24, 1880, I have described an upright reel having a coiling-space inclosed between two rows of pins, and the present improvement relates to a reel of this description—that is to say, a reel mounted on a vertical shaft, though it is immaterial how the coiling-space is formed.

Heretofore I have combined with an upright reel a horizontal supporting and lifting platform and a shaft for raising the same concentric with the reel-supporting shaft, and such invention forms the subject-matter of my application filed June 24, 1886, serial No. 206,079.

According to the present invention the discharging means, instead of being operated by a shaft concentric with the reel-shaft, are placed and operated outside of said shaft near the periphery of the reel. Such discharging devices consist of a series of vertically-moving arms, which, after the coil has been laid on the platform arranged to receive it, can be raised simultaneously, the horizontal part of said arms coming under the coil and lifting it clear of the reel-pins. The number of the lifting-arms and their arrangement may vary within wide limits and the means for raising them may be of any suitable description.

As my invention is herein embodied the coil, instead of being deposited upon a vertically-movable platform, is laid upon a series of radiating fins or ribs, with spaces between for the entrance and action of the lifting devices. These are preferably in the form of a bell-crank, having each a vertical and a horizontal part. Each arm at the lower end has an anti-friction roller, and the arms are all pivotally connected with a spider-frame or other convenient mechanism for raising them simultaneously. Normally—that is,

when the arms are down—they all incline away from the center of the reel, so that the ends of the horizontal parts are all clear of the rotating parts. When, however, the arms are raised, their rollers are acted upon by an incline or cam surface, causing them all to swing inward, bringing the horizontal parts under the coil and between the ribs on which it rests. In their further motion the arms have a vertical movement only, raising the coil until it is clear of the reel-pins. It is desirable for the sake of steadiness that several arms should be connected at their upper as well as at their lower ends. This is effected by a ring which normally rests loosely on the reel-platform, and has a lateral groove extending around its entire periphery. The upper and inner ends of the lifting-arms as they swing inward enter this groove, so that all the arms are connected by means of the ring, which rises with them as they raise the coil. When the arms are lowered, they descend vertically until the ring again rests on the platform, when they swing away from it into their normal position.

(Here follow diagrams marked pp. 344, 346 & 348.)

In the accompanying drawings, which form part of this specification, figure 1 is an elevation of a reel constructed in accordance with the invention; Fig. 2, a plan view thereof; Fig. 3, a vertical section, and Figs. 4 and 5 detail views.

The reeling or coiling mechanism is inclosed in a stationary casing B, mounted on a standard or base *a*. The main driving-shaft *b* is mounted in bearings *c c'* and carries the fast and loose pulleys *d d* and the bevel-gear *e*. The upright reel-shaft *f* is supported in the step-bearing c^2, and is driven by the bevel-gear *e'* from gear *e*. Shaft *f* carries at its upper end the disk or platform *g*. On this platform are a series of webs or ribs *s*, arranged radially and at equal distances from each other, and the several webs have at each end bosses *s*, in which are inserted the reel pins or fingers *r r'*, forming two concentric rings. The upper surfaces of webs or ribs *s* form a support, upon which the coil *l* is laid. Surrounding the upright shaft *f* is a sleeve *g*, having an external screw-thread or worm *g'*, which is engaged and driven by a worm-gear *h'*, the thread being formed on the hub of a bevel-gear *h*, which receives motion from a gear h^2. Gear h^2 is keyed on a shaft *k*, journaled in bearings in blocks k' k^2, and on the same shaft are two loose pulleys *l l'*, which are driven through belting by any suitable prime motor, the said pulleys rotating in opposite directions. A clutch *m* is placed on a shaft *k* between the two pulleys, and a lever *o*, pivoted at *o'*, is provided for moving said clutch lengthwise of the shaft, so as to engage either of said pulleys. The clutch *m* is connected with shaft *k* by a spline and groove or similar connection, so that by throwing the clutch into engagement with one or the other of said pulleys the shaft will be driven in one direction or the other and the sleeve *g* raised or lowered. In the position shown in the drawings the clutch is midway between the pulleys, and the shaft *k* is therefore stationary.

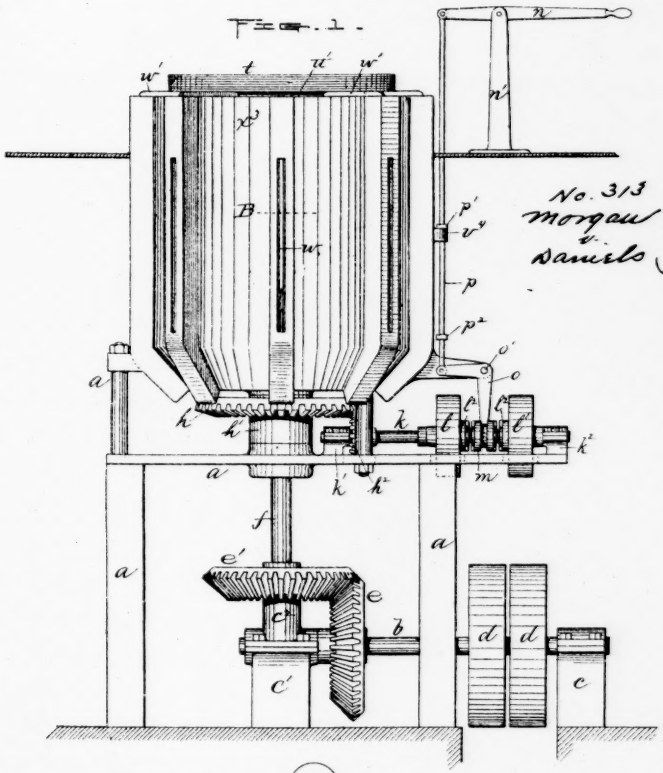
(No Model.) 3 Sheets—Sheet 1.

C. H. MORGAN.

REEL FOR REELING WIRE RODS.

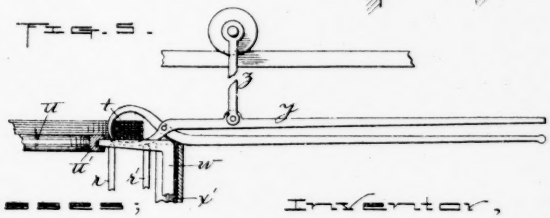
No. 416,941. Patented Dec. 10, 1889.

Fig. 1.



No. 313 Morgan v. Daniels p. 344

Fig. 5.



Witnesses;

Philip A. Brown

Charles J. Hedrick

Inventor,

Charles H. Morgan

By A. Pollok Atty.

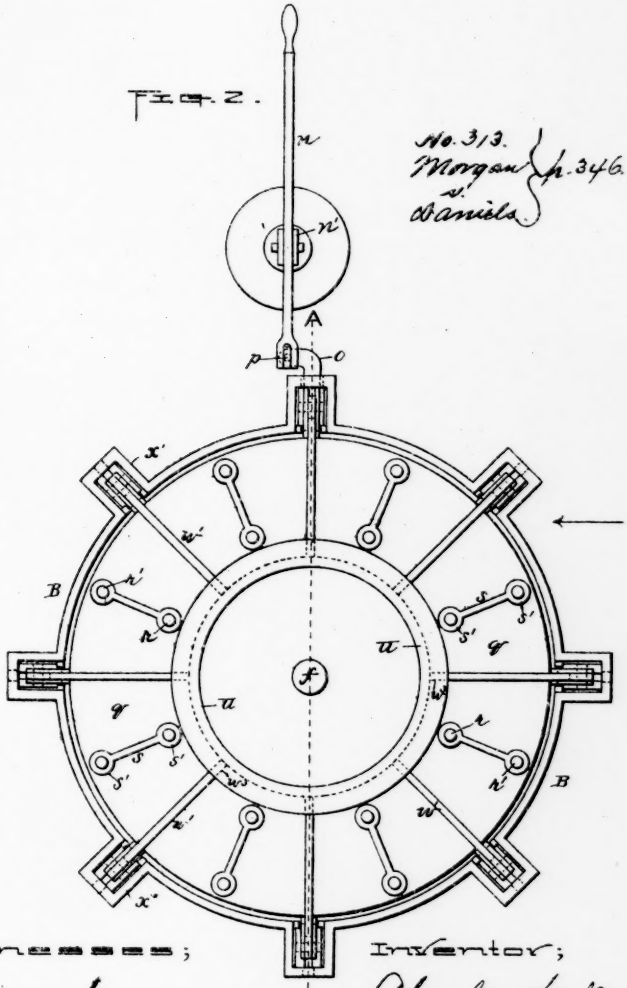
(No Model.) 3 Sheets—Sheet 2.

C. H. MORGAN.

REEL FOR REELING WIRE RODS.

No. 416,941. Patented Dec. 10, 1889.

Fig. 2.



No. 313. Morgan v. Daniels. p. 346.

Witnesses;
Philip Mauro
Charles F. Hedrick

Inventor;
Charles H. Morgan
By A. Pollok Atty.

(No Model.) 3 Sheets—Sheet 3

C. H. MORGAN.

REEL FOR REELING WIRE RODS.

No. 416,941. Patented Dec. 10, 1889.

No. 313.
Morgan
v.
Daniels
p. 348

FIG. 3.

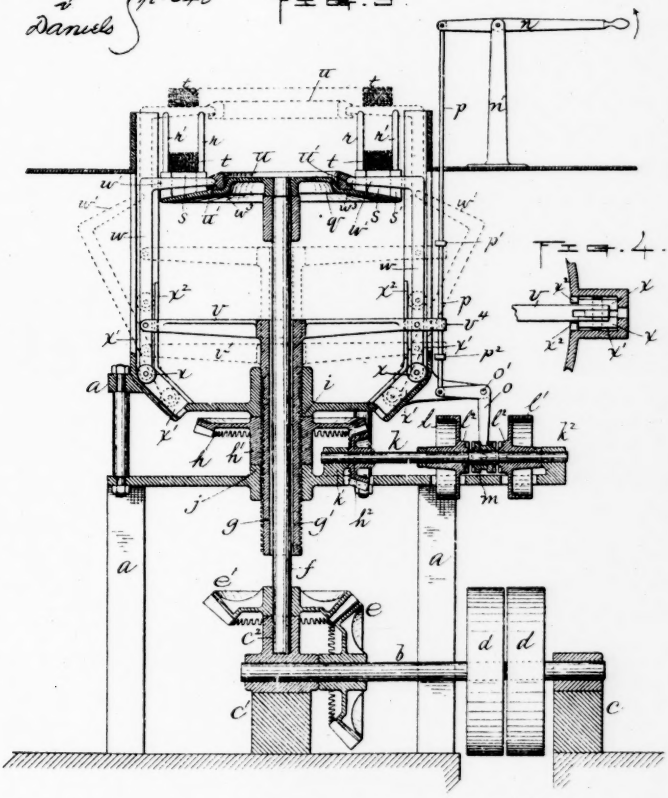


FIG. 4.

Witnesses;
Philip Abbaus
Charles J. Hedrick

Inventor;
Charles H Morgan
By A Pollok Atty.

Sleeve g has at the top radial arms v, and to the outer end of each arm is pivoted a lifting-arm, which consists of a vertical portion w and a horizontal portion w' at the upper end. Each arm is inclosed in a hollow guide x', formed by projections of the casing B. These guides are vertical for the greater part of their length, but at the lower ends have a portion which is inclined inward toward the shaft of the reel. Each guide has in its vertical part a slot of sufficient width for the passage of the lifting-arm therein. Each of the lifting-arms is at its lower end pivoted to a roller x, (see Fig. 4,) which is just the width of the hollow guide x', said roller being kept in the guide by the ribs x^2.

Resting loosely on platform q is a ring u, having a groove u' in its side, the shape of the groove being such that the tips W^3 of the lifting-arms fit snugly therein, and the diameter of the ring being such that the ends of all the lifting-arms when in their vertical position rest against the bottom of the groove and clamp the ring between them.

The bottom of each of the hollow guides x' is open, so that dust and other refuse matter that may collect therein can fall out. n is a hand-lever, pivoted in post n', for operating the clutch m, being connected to the bell-crank lever o by a rod p. On this rod are collars p' p^2, which the projection v^4 of one of the radial arms v strikes in its motion up and down for the purpose of disengaging the clutch.

In operation the wire is fed into the coiling-space between the pins r r' in the usual way, the sleeve g being in its lowest position during the operation of coiling, and the lifting-arms being in the position shown in dotted lines, Fig. 3. Said arms are caused to incline outward and project through the slots in the guide x', because as the rollers x run down the inclined portions of said guides the said arms are turned on their pivots and their upper horizontal parts w' are swung clear of the rotating platform q. When the coil is completed and the reel brought to rest, the operator raises the handle n until clutch m is thrown into engagement with pulley l', whereupon shaft k begins to rotate in the direction to raise the sleeve g. The lifting-arms then begin to rise, rollers x running along the inclined portions of the guides, and gradually swing the arms into a vertical position, the horizontal members thereof passing under the coil t in the spaces between the ribs s until the tips of said arms engage the groove in ring u. This occurs just as rollers x reach the angles of the guides and begin to ascend in the vertical portions thereof. By the further upward motion of the sleeve g the coil is lifted by the arms (ring u rising with the latter) until the projection v^4 strikes stop p', which throws the clutch m out of engagement with the pulley l'. As the upward motion of the sleeve is immediately arrested, the clutch is not moved far enough to engage pulley l. The coil t can now be removed by tongs y, Fig. 5, supported from an overhead track by a link z or by any other suitable means. The position of the coil when the lifting-arms reach the limit of their upward movement is shown in full lines in Figs. 1 and 5 and in dotted lines in Fig. 3. When the coil c has been removed, the attendant depresses the handle n until clutch m is engaged with pulley l, whereby shaft k

is rotated in the reverse direction, and sleeve g, with the lifting-arms and ring u, begins to descend. At the moment that ring u reaches platform q, and its further descent is thereby arrested, the rollers x begin to move over the inclines of the guides x', so that the upper portions w' of the lifting-arms swing outward away from the ring and project through the slots in said guides. The descent of the lifting apparatus is automatically arrested when the projection u^4 strikes stop p^2 on rod p and disengages the clutch.

It will be understood that different means from those described may be used to impart vertical movement to the lifting apparatus, and that in other matters of detail modifications may be made without departing from the spirit of the invention.

Having now described my said invention what I claim, and desire to secure by letters patent, is—

1. The combination, with a rotary reeling device mounted on a vertical shaft, of lifting-arms normally out of contact with the coil, and mechanism for lifting said arms to raise the coil clear of the reel, substantially as described.

2. The combination, with a rotary reeling device mounted on a vertical axis, of discharging mechanism comprising a series of lifters stationary during the operation of coiling, and means for imparting thereto a vertical motion to raise the coil clear of the reel, substantially as described.

3. The combination, with an upright reel in which the bottom of the coiling-space is composed of a series of ribs with spaces between, of a series of lifting-arms arranged outside the reel, and mechanism for elevating said arms through said spaces to lift the coil off its support and raise it clear of the reel, substantially as described.

351 & 352

4. The combination, with an upright reel, of a series of lifting-arms arranged in a circle around the reel, a vertically-movable support to which said arms are pivoted, so that they can swing toward and away from the reel, and a series of guides, one for each arm, having an inclined portion for acting thereon to turn it on its pivot, and mechanism for raising said support to bring the arms under the coil and lift it clear of the reel, substantially as described.

5. The combination of a rotary reel on a vertical shaft, a vertically-movable support having radial arms, lifters pivoted to said arms, rollers carried by said lifters, and inclined guides, over which said rollers travel as the said support moves up and down, substantially as described.

6. In a reeling device, the combination of the swinging arms pivoted to a vertically-movable support and having each a horizontal portion adapted when the arms swing inward to enter a space under the coil, and a ring normally resting loosely on the reel-platform within the coiling-space and having a peripherical groove, into which the ends of said arms enter, so as to grasp the ring between them as they swing inward and rise with their said support to lift the coil clear of the reel, substantially as described.

7. In a reeling device, the combination of the lifting-arms, the support therefor, actuating mechanism for moving said support ver-

tically in either direction, a clutch for putting said mechanism into and out of operation, an operating-rod for said clutch, and stops thereon in the path of a projection of said support, whereby the motion of the latter is arrested automatically, substantially as described.

8. The combination, with an upright reel, of discharging mechanism comprising a series of lifters, a sleeve surrounding the reel-shaft and carrying said lifters, a worm or equivalent gearing on said sleeve, driving-gears for imparting a vertical movement to said sleeve, and reversing mechanism, substantially as described.

9. The combination, with an upright reel, of a casing surrounding the same and having extensions at intervals constituting hollow guides, each of said guides being slotted longitudinally, a series of lifting-arms, one in each guide, a support to which said arms are pivoted, so that they can swing in and out of said slots in said guides, friction-rollers, one on each arm, inclined or cam surfaces traversed by said rollers, and mechanism for raising and lowering said support, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHAS. H. MORGAN.

Witnesses:
PHILIP MAURO.
CHALES J. HEDRICK.

353 The following is the opinion of the court in accordance with which the decree was entered in favor of the complainant:

Circuit Court of the United States, District of Massachusetts. In Equity.

FRED. H. DANIELS
v.
CHARLES H. MORGAN. } No. 2684.

Opinion of the Court.

(May 29, 1890.)

CARPENTER, *J.*:

This is a bill in equity brought under section 4915 of the Revised Statutes, and prays a decree which shall authorize the issue of letters patent to the complainant for his alleged invention of a new and improved apparatus for coiling wire rod as it comes from the rolls of a rolling mill. He describes his invention, in the seventh claim of his application, as follows:

"The combination, with a rod-coiling receptacle or reel, of a spider or lifting plate mounted on a central shaft, which is supported and reciprocatively movable within the reel-supporting shaft, and provided with means for elevating said central shaft and plate, substantially as and for the purpose set forth."

For the apparatus here in dispute application for letters patent was made by the respondent June 24, 1885, and by the complainant June 26, 1886, and, after proceedings in interference, a patent was issued to the respondent numbered 416,940, under date of December 10, 1889.

354 I am satisfied on the evidence, and it is indeed practically admitted, that the invention in question, which need not for the present purpose be more particularly described, was first embodied in a complete material form in a drawing which is produced by the complainant and marked "Exhibit Daniels Drawing 1." This drawing was made in March or April, 1879. Subsequently two other drawings were made containing modifications of the proposed machine, but not affecting the invention here in controversy, and finally in 1886 a machine was constructed by the respondent and put in successful operation.

The question, as presented in the opinions of the successive tribunals of the Patent Office which have passed on this question, was as to which of the parties is entitled to priority in the invention of the device which was embodied in the three drawings to which I have referred. On reading the whole testimony in the case I have come to the conclusion that the evidence on behalf of each party, if it will support any conclusion, can support only the conclusion that the party on whose behalf it was presented is the sole and only inventor, and that the other party never at any time made the invention in the sense of the patent law. The only question, in short, raised by the testimony, as I regard it, is the question who was the author of the drawings. At the time the drawings were made the respondent was the general superintendent of the works of the Washburn and Moen Manufacturing Company of Worcester, and the complainant was in the employ of the same company in a capacity subordinate to the respondent. The drawings were made by the complainant. As to the first of them he testifies:

"I went to Mr. Morgan and showed him my plan of a discharging platform. He told me to go ahead and make a drawing of a reel having a platform in accordance with my plan." (Int. 27.)

355 As to the same drawing the respondent testifies:

"In the spring, I think, in March, 1879, I gave directions to Mr. F. H. Daniels to make drawings for a reel with a lifting platform, operated by a hydraulic cylinder and piston. * * * Such drawings were made under my direction, supervision, and chiefly in accordance with my design." (Ints. 57, 58.) "I ordered it made and gave instructions in its design and details." "Mr. Daniels suggested the combination of the two hydraulic lifting cylinders, to be supplied through one pipe and valve, and * * * I adopted his suggestion, which was the only part of the details which was not suggested and designed by myself." (Cross-int. 191, 192.)

Turning now to the testimony as to what had preceded the preparation of this drawing, it appears, on the one hand, that the complainant in January and February, 1878, had in mind a plan for a reel with a discharging device, consisting of a spider or fork actu-

ated from an overhead track, and that he made a sketch of this plan, which is not produced; that in July, 1878, he "devised an automatic reel, having a discharging platform," operated by foot power, and made sketches of the proposed apparatus, which have disappeared, and as to the construction of which there is no satisfactory evidence, except his own statement; that in November, 1878, and thence to February, 1879, he made three sketches, which are produced and which show a reel with a platform elevated by a lever actuated by hydraulic power, and also a platform and reel with concentric shafts and devised in one case to raise the platform and in the other case to lower the reel, so that the coil of wire may be removed. (F. H. Daniels, Ints. 4–17.)

On the side of the respondent it appears that in October, 1878, Daniel C. Stover showed to the respondent a model of a discharging device which he had invented, "consisting of a disk attached to a shaft extending through the axis of the reel, which could be
356 pushed forward by the action of a cam, effecting the discharge of the coil," and that the respondent thereupon said to Stover that he could use that discharging device in connection with a reel which he had invented and of which he showed a model. (C. H. Morgan, Int. 28–35.)

It appears to me that the above recitals are all well supported by the evidence, and can admit of no doubt, and they are, so far as I can see, the only facts having any material bearing on the authorship of the first complete drawing of this invention. The complainant, on the issue here tendered, assumes the burden of proof, and must I think, as the evidence stands, maintain by a clear and undoubted preponderance of proof that he is the sole author of that drawing. I am entirely satisfied that he has maintained this proposition. He had long before had under consideration a device for discharging the coil from the reel and had eight months before made the sketches which show the substance of the invention which was there embodied. On the other hand, the respondent before the making of the drawings, according to his own statement, had done nothing except to entertain the casual thought that the disk attached to a shaft concentric with that of the reel might be used to discharge the coil. I have no doubt that the origin of the first drawing was precisely as described by complainant in his answer to interrogatory 27 as above quoted.

The respondent insists that an inference contrary to the truth of the complainant's claim is to be drawn from the fact that on several specified occasions he neglected to set up the claim that he was the inventor of the device in question. I shall not go over the testimony on these points and shall only say that I see no evidence that there was any time when either the complainant or the respondent, if conscious that he was the inventor, would have felt called on to assert his rights. It does not appear that either of them ever claimed to be the inventor until he applied for a patent
357 & 358 except so far as there was a constant tacit claim and admission between the two men in accordance with what both knew to be the fact. And even in their own minds I

am by no means satisfied that there was a concurrence of thought on this question. The respondent's counsel, speaking in his brief of the final drawing made by the complainant and from which the machine was built, uses this language:

"The drawing was made while Morgan was in charge of the works, and, by a necessary presumption of law, it was made under his direction, and, in the absence of a contemporaneous claim on the part of Daniels, the conclusion must be accepted that, if the drawing represented new and patentable devices, those devices were the property of Morgan."

It is not difficult to suppose that the respondent has held this same view of the relative rights of himself and those who were, like himself, but subordinate to himself, servants of the company. If he did hold that opinion, seeing that the drawing which showed the invention was prepared by his order and that the draftsman made no claim as to the authorship, he would doubtless feel that the invention was his own and that he might lawfully so affirm both in his application for a patent and in his subsequent testimony.

A decree will be made authorizing the issue of a patent to the complainant as prayed.

359 & 360 *Clerk's Certificate.*

UNITED STATES OF AMERICA, }
Massachusetts District, } ss:

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the record of said circuit court in the cause, in equity, entitled No. 2584, Fred. H. Daniels, complainant, *v.* Charles H. Morgan, defendant, lately determined in said circuit court, and of all proceedings therein and of the opinion of the court filed therein.

In testimony whereof I hereunto set my hand and affix the seal of said circuit court, at Boston, in said district, this tenth day of October, in the year of our Lord one thousand eight hundred and ninety, and of the Independence of the United States the one hundred and fifteenth.

Seal of the Circuit Court, Massachusetts.

JOHN G. STETSON, *Clerk.*

361 *Bond.*

Know all men by these presents that we, Charles H. Morgan, of Worcester, in the Commonwealth of Massachusetts, as principal, and Edward A. Goodnow and G. Henry Whitcomb, are held and firmly bound unto Fred. H. Daniels, of said Worcester, in the full and just sum of one thousand dollars, to be paid to the said Fred. H. Daniels, his certain attorney, executors, administrators, or assigns; to which payment, well and truly to be made, we bind our-

selves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated the twenty-third day of August, in the year of our Lord one thousand eight hundred and ninety.

Whereas lately, at a circuit court of the United States within and for the district of Massachusetts, in a suit in equity depending in said court between said Fred. H. Daniels, complainant, and the said Charles H. Morgan, defendant, a decree was rendered against the said defendant, and the said defendant having obtained an appeal to remove the said cause to the Supreme Court of the United States to reverse the decree in the aforesaid suit, and a citation directed to the said complainant, citing and admonishing him to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October next:

Now, the condition of the above obligation is such that if the said defendant shall prosecute his said appeal to effect and answer all costs if he fail to make his plea good, then the above obligation to be null and void; otherwise to remain in full force and virtue.

CHAS. H. MORGAN. [L. S.]
E. A. GOODNOW. [L. S.]
G. HENRY WHITCOMB. [L. S.]

Signed, sealed, and delivered in presence of—
A. H. WAITE to E. A. G.
F. H. McFADDEN to C. H. M.
CHAS. O. BACHELOR to G. H. W.

Approved.
G. M. CARPENTER, *J.*

A true copy of the bond taken by the judge at the time of allowing the appeal named in said bond, which bond is on file in the office of the clerk of the circuit court of the United States for the first circuit and district of Massachusetts.

Attest: JOHN G. STETSON,
Clerk U. S. C. C., Mass. Dist.

Endorsed on cover: Case No. 14,359. Massachusetts C. C. U. S. No. 313. Charles H. Morgan, appellant, *vs.* Fred. H. Daniels. Filed October 20, 1890.

153-120

Supreme Court of the United States.

October Term, 1893.—No. 313.

CHARLES H. MORGAN, Appellant,

vs.

FRED. H. DANIELS.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

BRIEF FOR APPELLANT.

GEORGE S. BOUTWELL,
ANTHONY POLLOK,
PHILIP MAURO,
Of Counsel for Appellant.

McGILL & WALLACE, Law Printers, Washington, D. C.

Supreme Court of the United States.

OCTOBER TERM, 1893.

CHARLES H. MORGAN, Appellant,
vs.
FRED. H. DANIELS.
No. 313.

Appeal from the Circuit Court of the United States for the District of Massachusetts.

BRIEF FOR APPELLANT.

I.

STATEMENT.

This is an appeal from a final decree in equity, authorizing the issue of a patent to the complainant, Daniels (the appellee in this court), for a certain Improvement in Machines for Coiling Wire Rods.

The bill of complaint was brought under the provisions of Section 4915, Revised Statutes, and was filed October 30, 1889. As provided in that statute, Morgan was made defendant to the suit, he being the grantee of a patent for the device which Daniels claims to have invented.

Final decree by Judge Carpenter was entered June 30, 1890 (printed Record, p. 5), declaring that Daniels was

the original, first and sole inventor of the device in question, and that Morgan was not the inventor thereof. The defendant, Morgan, claiming an appeal in open court, the appeal was allowed and an order to that effect entered the same day as the decree (p. 6).

The suit is a continuation of an interference proceeding in the Patent Office, and the evidence before the court is the same as that before the Commissioner. Upon this evidence the Commissioner of Patents found that the appellant, Morgan, was the original and first inventor of the machine in question, and in accordance with that finding ordered the issue of the patent to him. The patent is printed in the Record, beginning at page 247, and the decision of Mr. Commissioner Hall is printed at page 238. This decision affirmed that of the Examiner of Interferences (p. 228), and reversed that of two members of the Board of Appeals (p. 235) who found in favor of Daniels.

Motion for a review and reversal of Commissioner Hall's decision was made before his successor in office, Mr. Commissioner Mitchell, who, however, found no error in his predecessor's decision, and dismissed the motion. Mr. Mitchell's decision is printed at page 243. Thereupon the patent, No. 416,940, dated December 10, 1889, was granted to Morgan.

The machine described in this patent is a reel for automatically receiving and coiling up the "wire rod," which is the name technically given to the product of a wire-rod rolling mill. This rod (or wire) is about 200 feet long as it issues from the last of the train of reducing rolls at a high speed, and being red-hot is exceedingly difficult to handle.

Prior to the successful completion by Morgan in 1886 of the automatic reel, described in his patent, the operation of catching the end of the rod, engaging it with a reel and starting the latter into operation, was performed

by hand, and required the concerted action of three men, whose safety depended on their promptness and vigilance. The difficulty, danger, and other drawbacks attending the old plan of receiving the wire rod are fully set forth in the testimony (Stover, p. 51; Morgan, p. 68), and automatic reeling had been for many years a problem, upon the solution of which much effort had been expended and much money spent.

The reeling mechanism described in Morgan's patent has an *upright* shaft carrying a movable platform or spider, upon which the rod is designed to be coiled as it issues from the mill, the shaft being rotated at the proper speed. This movable platform rests on a second platform, which is fast on the reel shaft and has two rows of upright pins, forming concentric circles, the annular space between them being the coiling space into which the rod is conducted by a guide-pipe. The upper horizontal platform is in the form of a spider-frame, and is capable of being raised vertically, so that after the reeling is completed, and the reel brought to rest, the coil can be lifted clear of the upright pins, and supported by the movable platform in this raised position until removed. The machine also has mechanism, operated by hydraulic power, for starting and stopping the reel, a friction brake, and a cylinder, piston, and other appliances for elevating the platform. It is an elaborate and somewhat complex piece of mechanism.

In many of its features this reel is similar to reels previously designed and intended to operate automatically, and which are shown in prior patents. For example, patents to Morgan, No. 220,300, October 7, 1879, and No. 224,941, February 14, 1880, show upright reels, that of the later patent having two concentric rows of pins, between which the wire was to be coiled (p. 70). Reels of this character, of which the Morgan patents last referred to are the earliest examples, are sometimes termed "pouring reels," as distinguished

from "traction reels." In the latter class of reels the end of the wire is fastened to the reel pins, which draw or pull upon it in winding it up. Thus, what chiefly distinguishes the reel of the patent involved in this suit (No. 416,940) in appearance and construction from those that preceded it is the *lifting platform*. What perhaps better distinguishes it (considering it as an organized machine) from prior automatic reels, patented or not, is that it is a successful and operative machine, while they were utter and costly failures.

On account of the prior patents and publications the claim of the patent and the subject-matter of the interference between Morgan and Daniels were confined to—

"A reeling device for receiving and laying in coils the wire rod as it is delivered from a train of rolls, said reeling device being provided with a platform supporting the coil, and capable not only of revolving with said reel, but also of being elevated independently thereof, so as to lift the coil above the periphery of said reel and permit its removal laterally"—

this being claim 1 of Morgan's patent.

At the time of the events spoken of in the testimony Morgan was, and had been for many years, the general superintendent of the Washburn and Moen Manufacturing Company, of Worcester, Mass. (p. 57), and Daniels was a draftsman in the employ of the same company, a subordinate of Morgan, working entirely under the latter's orders. (Morgan, p. 73 *et seq.*)

The only dispute and the only uncertainty as to the facts in this case exist with respect to occurrences in the years 1878 and 1879, seven years or more before the parties filed their conflicting applications for patents. The business and social relations of the parties at that time were very close and intimate, each apparently enjoying the full confidence of the other, and from this intimacy

arises the chief difficulty in elucidating the facts as to what then passed between them.

In the year 1879 Daniels, as part of his drafting work, and by direction of Morgan, executed working drawings for a reel intended for automatically coiling wire-rods, which reel, as shown in these drawings (Exhibit Morgan No. 5; Exhibit Daniels No. 2) had the upright shaft and lifting platform characteristic of the invention subsequently patented to Morgan in 1889. That Daniels was Morgan's chief draftsman at the time, and that the drawing was made by the latter's direction are undisputed facts; but the claim of Daniels is that this drawing is exceptional in character, in that it embodies *his own* ideas and inventions, and not those of Morgan; that the lifting platform, an essential part of this device, was his own sole invention, first thought of by him in July, 1878, and that Morgan had no part in it. This is the main point in dispute. No witness corroborates the statement of Daniels that he disclosed the idea of this device to Morgan in March or April, 1879, or at any time. Morgan testifies (p. 77) that he did not learn or suspect that Daniels claimed to be the inventor of the device in question until the interference in the Patent Office was declared. Five of Daniels' intimate associates in the work, and the two principal officers of the company (Washburn and Moen), now interested in his behalf and hostile to Morgan, have testified in the case, but none of them had ever heard, until eight years after the alleged event, that he considered himself the inventor of the device shown in the 1879 drawings.

From these drawings reels were built and tested in the same year—1879. This was one of a series of attempts made by Morgan in that year to solve the problem of automatic reeling, and like the others, it failed. There is no dispute that the other reels tried in that year were invented and designed by Morgan. Daniels claims that

this particular reel was an exception. Neither is it disputed that, whoever designed the reel, it was a failure, and was eventually destroyed by the masterworkman, Young, as a useless incumbrance. The reasons for the failure are given by Morgan, p. 69, ans. 47.

After these tests Daniels prepared some further drawings by Morgan's direction, from which it was proposed to make another trial, but further efforts in that line were abandoned because, according to Daniels' statement, of the "pressure of other important and necessary work."

With the making of the last-mentioned drawings, in the spring of 1880, ended finally Daniels' connection with the work on automatic reels, whether as inventor or draftsman. What was done thereafter in this direction was done by Morgan alone, as is not disputed.

For five years the question of automatic reeling was laid aside. It was recurred to by the vice-president of the company, Mr. Washburn, in the year 1885, when an order was given by him, which reads:

"Order No. 1103.

"To Mr. Young, for two automatic reels in continuous mill No. 2." (Record, page 48.)

The order is dated August 31, 1885. Morgan was away from the works at that time, having a few months previously resigned his position as superintendent because the performance of his duties became irksome and unpleasant (p. 57, int. 7). But being re-elected to the position of general superintendent, he entered again upon the duties of that position under a new contract dated September 7, 1885 (p. 142), just one week after the above order was given, and apparently before anything had been done under it.

One of Morgan's first acts was to call for all orders in course of execution, and to suspend them by writing thereon the word "hold." Order No. 1103 was among

these, and his particular reason for suspending this order was that he might give special personal study to this subject, the construction as then contemplated (from the old 1879 drawings) being "defective and dangerous." (P. 102, int. 217.)

In the meantime the pleasant relations of former years between Morgan and Daniels had changed. Morgan says he had lost confidence in Daniels, and consequently when he (Morgan) again took up the study of automatic reeling, which he did in the latter part of the year 1885, he pursued his studies in private, and had the drawings of his designs executed at his own house, and by his own private draftsman. (Morgan, pp. 60, 61, ints. 18–22; Daniels, p. 17, int. 45; Moen, p. 124, int. 23, *et seq.*)

From the drawings so made a pair of reels were constructed, and were first tested in March, 1886. They did not at first operate successfully; but after being taken down and partly reconstructed, they were again tested in May, 1886, this time with complete success. These reels were in practical operation at the time the proofs were taken (p. 72).

Daniels had been directed by Morgan to supervise and make a report on these tests. His report is dated June 3, 1886 (p. 145). In it he says:

"The automatic reel for coiling the finished No. 10 wire rod worked excellent, *and can suggest no improvement.*"

Morgan filed his application for patent June 24, 1886, describing and claiming the reel as constructed by him and put into successful operation.

Daniels, on June 26, 1886, filed his application for patent (p. 205), illustrating the reel as shown in the drawings of 1879 and 1880, but making claims conflicting with those of Morgan.

As further completing the statement of the relations of

the different parties to this controversy, it may be said that the application of Daniels was made at the request of Mr. Washburn (Morgan, int. 20, p. 61; Washburn, int. 3, p. 187), and that the Washburn and Moen Company is defraying the expenses of these proceedings against Morgan. The agreement of this company with Daniels gives it practically the entire ownership of his inventions made during his employment by the company (see contract, p. 150), while under its agreement with Morgan it has only a shop-right in the latter's inventions. (See contract, p. 142.) Hence the interest of the company in this suit.

Although Morgan was a director and the chief executive officer of the company, having full control of the works, the men and the operations of the shop, the arrangement which the vice-president, Mr. Washburn, made with Daniels, was concealed from him (Morgan) until brought out by the interference. Upon learning it, Morgan again resigned his position and finally severed his connection with the company, which is the real actor in these proceedings against him.

II.

Errors in the Decision of the Court Below.

The learned judge who decided this case in the Circuit Court held that the invention in question "was first embodied in a complete, material form in a drawing which was produced by the complainant and marked 'Exhibit Daniels, Drawing 1,'" being one of the 1879 drawings already referred to; and that the complainant (Daniels) was the sole author of that drawing.

We submit that the court erred in holding that the said drawings embodied the invention in a complete, material form, and particularly in holding that this is "practically admitted;" the undisputed fact being that

the reels built in accordance with these drawings were complete and total failures, and that the best efforts of the parties to this controversy, with the skilled machinists, and the resources of one of the largest shops in the country, could not make them operate. (P. 69; p. 71, int. 65; p. 72, int. 66.)

We submit, further, that the court erred in holding that Daniels was the author of the design exemplified in the drawing. The learned judge rests this holding upon his understanding of the facts, as thus stated in his opinion:

"That the complainant in January and February, 1878, had in mind a plan for a reel with a discharging device, consisting of a spider or *fork actuated from an overhead* track, and that he made a sketch of this plan, *which is not produced;* that in July, 1878, he 'devised an automatic reel, having a discharging platform,' operated by foot-power, and made sketches of the proposed apparatus, *which have disappeared, and as to the construction of which there is no satisfactory evidence, except his own statement;* that in November, 1878, and thence to February, 1879, he made three sketches which are produced, and which show a reel with a platform elevated by a lever actuated by hydraulic power, and also a platform and reel with concentric shafts, and devised in one case to raise the platform and in the other case to lower the reel, so that the coil of wire may be removed."

(The italics in the quotation are ours.)

This passage from the decision of the learned judge contains his entire statement of the reasons upon which he bases the finding that Daniels was the author of the 1879 drawing—a matter which, in itself, is immaterial. We submit that the evidence, even as stated by the court, does not justify that finding; since, as to all the sketches which are *early enough* to anticipate Morgan's admitted date of conception, the court says that they are "not produced," "have disappeared," and as to their construc-

tion "there is no satisfactory evidence except his (Daniels) own statement."

Considering that Morgan is the grantee of letters patent for this invention, issued to him after full investigation of the counter claims of Daniels, that he was the prior applicant, and the only one who reduced the invention to practice in working machines, and that the burden of proof is on his adversary to show, beyond a reasonable doubt, his priority of invention, we confidently submit that the findings of the court, if the evidence justified them, would not warrant the conclusion reached.

But in the statement of the court regarding these sketches there are material errors. The sketch alleged to have been made in January, 1878, having a fork attached to an overhead track, is foreign to this controversy, and *not by any one pretended* to have illustrated the idea of the reel with lifting platform. The evidence in regard to this sketch (Bedson's affidavit, p. 45) being an *ex parte* affidavit not even entitled in any cause, and made by an unknown person residing in a foreign country, is clearly inadmissible, and was objected to on the Record, when introduced. (Page 10.)

As to the alleged sketches of July, 1878, we deem it unnecessary to add anything to the statement of the court that they are not produced, and as to their construction there is no satisfactory evidence except Daniels' own statement. That disposes of them for all evidential purposes.

As to the sketches of November, 1878, and February, 1879, we submit the facts to be as follows:

(1) The only two which are claimed to be material (Exhibit sketches 1 and 2) are *not dated*, and their alleged date is disproved by the witness (Angstrom) to whom Daniels appealed to prove it. (Pages 156, 157.)

While it is not possible from the sketches themselves to determine what they were made to illustrate, Daniels

says they were intended to show "the application of *hydraulic power* for operating a discharging platform." (P. 12, int. 17.) But in his letter to Angstrom (p. 46), in which Daniels appeals to Angstrom to remember certain alleged events, he (Daniels) says he made the improvements in the lifting means "by introducing a hydraulic cylinder," during *the early part of the year 1879.*" So that Daniels, the only witness as to the date of these sketches, contradicts himself.

(2) These sketches show nothing intelligible. On examination of them the interference examiner, accustomed as he is to decipher the crudest drawings, said in his opinion (p. 231):

"If the sketch that Lambert saw was similar in its execution to these (Exhibit sketches 1 and 2), it is submitted that he must be possessed not only of a remarkable memory, but of a very lively imagination as well, to have gathered and retained for so long a time a clear and distinct impression of what it contained from having it merely shown to him."

To the same effect Mr. Commissioner Hall says of these sketches (p. 239), speaking of the recollections of the witness Fowler regarding another sketch:

"What the sketch contained, which one of the many devices for reels, was at that time being investigated and experimented with, the office is unable to say, but it may be said that if the sketch shown Fowler was no clearer than the sketches offered in evidence by Daniels, being Exhibits 1, 2, 3, and 4, there is abundant reason why Fowler does not remember what he saw in the sketch of July, 1878."

(3) The date alleged for those sketches (November 5, 1878), is *later* than the date when it is proved and conceded that Morgan conceived the idea of combining a lifting platform with his vertical reels, and explained

the combination by the aid of models of his vertical reels to the witness Stover. For this last reason we might safely admit their existence at the date alleged.

Further, we submit that the court below erred in not giving due weight and proper legal effect to the admitted facts that Morgan (whether or not the first) was an *original* inventor of the combination in question (the testimony of Daniels being that he first mentioned the idea of a lifting platform to Morgan in *March or April, 1879*), and that he (Morgan) was the first to perfect and adapt the invention to actual use.

Other errors, which we would specify in the decision of the court below, consist mainly in not giving weight to the evidence furnished by the conduct of Daniels, which discredit his claim of invention of the machine in controversy; and these errors can be most appropriately set forth and discussed in the brief of the argument which follows.

III.

BRIEF OF THE ARGUMENT.

1.

MORGAN'S RIGHT TO THE PATENT WHICH HAS BEEN GRANTED TO HIM IS ESTABLISHED BY THE ADMITTED FACTS IN THE CASE ACCORDING TO THE "SETTLED RULE OF LAW" IN THIS COURT.

The rule of law which has been invariably applied in determining the issue of priority of invention is stated by this court in Whitely *v.* Swayne (7 Wallace, 685), as follows:

"He is the first inventor and entitled to the patent, who, *being an original discoverer, has first perfected and adapted the invention to actual use.*"

Two conditions are stated: First, he must be an *original discoverer;* he must not have obtained the idea surreptitiously from his adversary; and, second, he must be the first to *perfect and adapt the invention to actual use.*

That Morgan fulfills both these conditions is beyond controversy, as appears from the undisputed facts already stated. We will refer a little more fully to this evidence showing that Morgan was an original discoverer.

The subject-matter of the claim in dispute may be accurately defined as the application to a *vertical* reel of a lifting platform for supporting the coil as it is laid in the reel, and for raising it when the reel is arrested, clear of the reel pins.

One element of this combination, the vertical reel, was invented by Morgan *before July 3, 1878.* Exhibit Scott Drawing, showing two reels, one with a single row and the other with a double row of pins, was made by one of Morgan's draftsmen, G. S. Scott, on that day, and is identified and described by him. (Scott, p. 119). This drawing is the earliest documentary evidence in the case. During that summer Morgan had models made of those two forms of reels, which models were filed in February, 1879, with the two applications for patents, Nos. 220,300 and 224,941, already referred to.

In October, 1878, Daniel C. Stover, a skilled mechanic and inventor, visited the works of the Washburn and Moen Company, on business relating to inventions of his own, and spent a week there. He heard the discussions of automatic reels and the danger and expense of the hand method, which greatly impressed him, and set him to thinking about automatic reeling. (P. 51).

As to the result of this he says:

"I then set to work to invent some machine for this purpose, and perhaps in less than fifteen minutes I conceived the idea which is set forth in my patent No. 219,214. This was in the afternoon of October 26, 1878."

The patent is printed at page 226 of the Record. Stover goes on to say that he discussed his idea with Morgan, and asked him for a reference to a model-maker, and the next day he had a wooden model made of his reel. (See "Exhibit Stover Model.") The model represents a reel on a *horizontal* axis, provided with a discharging plate movable outwardly to remove the coil from the reel-pins. Morgan was impressed with the possibilities of this discharging plate, and *on that day* conceived the idea of combining a similar plate with his vertical reels. He brought out the models of these reels and disclosed the combination to Stover. (Stover, p. 53, int. 9 and int. 13; Morgan, p. 62.) Moreover, in order to control this discharging platform for all purposes he purchased an interest in the invention of Stover on the spot. The agreement of sale, dated October 28, 1878, which is in evidence (p. 141), proves the transaction and fixes the date beyond dispute.

Daniels claims that he had before this—that is to say, in July of the same year—conceived the idea of a vertical reel with discharging plate, and had made sketches thereof, these being the sketches whereof the learned judge of the Court below says no satisfactory evidence except Daniels' own statement is given. But, whether this claim be true or not, the important fact is that Daniels himself testifies that *he never spoke to Morgan about having conceived the idea of a vertical reel with discharging plate until "March and April, 1879."* (X.-Q. 156, p. 41.)

Daniels was present during the interview with Stover, participated in the discussion of the latter's device, and made a sketch of it in his sketch-book, the sketch being dated "October 26, 1878" (cross-int. 147, p. 33); but he made no reference to having had a similar idea himself.

Thus it appears upon undisputed testimony that Morgan was an "*original discoverer*" of the combination in

dispute, and which he afterwards *perfected and adapted to actual use.*

In view of these admitted facts, it may be unnecessary to go into the disputed question whether Daniels did or did not, in July, 1878, conceive the idea of an upright reel with a lifting platform and make sketches thereof; for even if he did, the settled rule of law is that such prior conception can not prevail against the grantee of letters patent for an invention whereof he was an original discoverer and which he put in successful operation.

"*The settled rule of law* is that whoever first perfects a machine is entitled to the patent and is the real inventor, although others may previously have had the idea and made some experiments towards putting it into practice. He is the inventor, and is entitled to the patent, who first brought the machine to perfection and made it capable of useful operation." (Agawam Co. *v.* Jordan, 7 Wall., 583.)

From the date of Morgan's first conception of the idea, to the completion of the successful machines in 1886 the history of this affair is consistent only with the supposition that he was pursuing his own original thought, without knowledge of any claim by Daniels.

Stover's application for patent was filed February 24, 1879, and shortly thereafter Morgan directed Daniels to make the drawings of the vertical reel with movable platform and hydraulic lifting means. (Morgan, p. 71, ints. 57–59; Daniels, p. 14, int. 27.) It is certain that, if Daniels had then, as he testifies, disclosed this idea to Morgan as his (Daniels) own, the controversy, which sprang up seven years later, would have then occurred and the matter been settled when settlement would have been easy. It must be believed, therefore, that Daniels did *not* at that time put forward this idea as his own, but that the drawings were made like all the others, from Morgan's direction, and that he was the sole au-

thor of the ideas it represents, except so far as Daniels' skill as a draftsman was employed on the work.

We have stated that the reels made from these drawings failed, and that the effort to construct automatic reels was thereupon abandoned because of "the press of other important and necessary work," as appears from the statement of Daniels (p. 8) and *his witness*, Young (p. 39, int. 8 and int. 11). We refer to these statements because the insinuation has been made that Morgan abandoned the experiments on account of jealousy of Daniels, and for fear they would succeed. If that was his motive, moreover, it is hard to conceive why he should have made the tests at all.

2.

THE CLAIM OF DANIELS TO A CONCEPTION OF THE INVENTION IN CONTROVERSY AT A DATE PRIOR TO MORGAN'S CONCEPTION IS NOT ESTABLISHED BY THE EVIDENCE.

The claim is that Daniels made sketches representing a vertical reel with lifting platform in July, 1878; that he showed such a sketch on one occasion (said to be in July, 1878), to the witness, Fowler, and about the same time showed a similar sketch to Lambert. The sketches are not produced or accounted for. The attempt is made to prove the contents of the sketches and *to fix the exact date*, purely by effort of memory, *eight years after the alleged event*.

Upon consideration of the evidence as to these sketches, the Examiner of Interferences held that it was utterly insufficient to establish their contents and date (p. 230). The Commissioner held that the recollections of the witness, Fowler, "as to what he saw or what was described to him in the sketch are at most vague and unsatisfactory, and offer but slight corroboration of Daniels, if any" (p. 239). Of Lambert he says: "The testimony of this

witness is not of a kind to warrant a strong belief in its accuracy." We refer the court to these two decisions for a fair discussion of the testimony on this point.

The court below held, as to these sketches, that there was no satisfactory evidence as to the construction they contained beyond Daniels' own statement.

This Court will find, upon reading the testimony of these witnesses, that the conclusion reached by these three tribunals is the only one which the testimony could possibly lead to.

That Daniels had many conversations with different persons on the subject of automatic reels in the year 1878 is highly probable; though it is highly improbable that the substance and date of any particular conversation could now be established by mere recollection. Automatic reeling was then the matter of chief interest at the works, and Daniels was in possession of all Morgan's plans and ideas, as both agree. It is also highly probable that *after October 28th* Daniels talked with various persons about the lifting platform plan, which Morgan then made known. The witnesses may be honest, and possibly even accurate in the main as to the substance of the conversations they attempt to repeat, and yet be mistaken as to the *time* of the occurrence. There is nothing to fix the latter, except that the witnesses think it was soon after Daniels' return in July, 1878, from a trip abroad. But three months would seem "soon after" when viewed through the perspective of more than eight years. It is much easier to believe that the witnesses are mistaken as to the exact date than it is to believe that Daniels had in mind a plan of automatic reeling, which he spoke about and explained to a social acquaintance, but did not mention to Morgan until nine months later.

Taking up separately the witnesses as to the July sketches, we will first refer to Fowler, whose deposition begins at page 22 of the Record. Fowler has a memo-

randum in his note-book that he spent July 20, 1878, with Daniels at Newport. He places the alleged conversation at that meeting, though there were many others, at any one of which it might have occurred, if at all, and though there is nothing in the memorandum about any conversation. What he now says Daniels explained to him by rough sketches was a round box with a plate in its bottom that could be lifted for the purpose of raising the coil of wire. It is conceivable that Daniels talked about what was then going on at the works, where plans of Morgan's automatic reels were being prepared in the drafting department, particularly, as *on the very day previous*, July 19th, Scott began work on Morgan's hydraulic lifting grapple or fork, and Daniels was present when Morgan explained to Scott how the machine was to work. (Scott, p. 119, ints. 25 and 26.) What Fowler speaks of, it will be noted, is something "to *get hold of* the coil to lift it out of the box." (Int. 3.)

Fowler is utterly unable to remember what had occurred at other meetings with Daniels; did not look up diary entries of 1879 and following years, and altogether betrays a very bad and unreliable memory, as the cross-examination shows. Fowler had no interest at all in the subject of automatic reeling, and the impressions likely to survive after eight years, concerning the substance of a casual conversation on a holiday trip, may well be left to the appreciation of judges familiar with the capabilities of human memory.

Lambert's deposition fully justifies the finding of the Commissioner, that he is not the sort of a witness to inspire confidence, particularly as he is testifying in the interest of his employers.

Lambert (p. 34) says that one day, after Daniels returned from Europe, he "should think two or three weeks, if not four" (int. 10), Daniels showed him a sketch of a reel and asked him to make a model of it;

that he told Daniels he had not time to make a model, and did not. For the purposes of evidence in this case he made a model (Exhibit Lambert Model) which he says is like the sketch Daniels showed him more than eight years previous. Lambert's testimony is that he made the model in the fall of 1886 (p. 34), and when asked what he went by in making that model (int. 7) says: "I went *by my judgment* and the sketch I had seen before." In law this model has no evidential value whatsoever. Lambert had been in the works and had full access to all parts thereof. He knows perfectly all that was done subsequently in the construction of automatic reels, having done work on them (x-int. 36, p. 36), and, if we concede his honesty, it would not be strange if he had confounded what he has seen in recent years with the sketch which he says he saw in 1878.

Two pertinent questions arise in this connection: first, For what purpose did Daniels want a model? and second, Why did he not obtain one? He had a sketch, and had the ability to produce with his own hand a drawing which would preserve knowledge of the device, if that were his object. If the model were wanted for an application for patent (its only conceivable object) the inability of Lambert to make it was no hindrance, for the city of Worcester was full of artizans and mechanics, and we have seen that Stover was able to have a model made in a few hours. Furthermore, no application for patent was made by Daniels; and so this alleged occurrence stands, without any explanation to give it probability and without any connection with any other event that transpired before or since. At the end Daniels can produce neither sketch, drawing, nor model, nor does he offer any explanation of his inability. As to the date assigned by Lambert to this occurrence, we would only say that it is not fixed at all; and that as to models which Lambert actually *did* make, and therefore has better reason to remember, the best he can say is:

"Well, I couldn't give you the exact date just now. The gas annealer was the first one that I made. It was either *two or three years* after I commenced here. Between two and three, *I think*. As close as I can remember the elevator—that was *two or three years after that*. The Belgian mill furnace was the last model I made. I hain't got the date—*say a couple of years later*."

"Suit yourself about it," is what the witness says of the date of these actual events. It's a matter of choice. In the instance of Daniels' alleged conversation about the model that was not made the date that suits is some time earlier than Morgan's date, and the witness chooses "two or three, if not four," weeks after Daniels returned from Europe in July, 1878.

Vested rights will not be destroyed if their destruction depends on the ability of this man to fix from memory the substance and date of a casual conversation, said to have taken place nearly nine years before he testified. Never was a patent overthrown on such testimony as this.

3.

The Claim of Daniels as Inventor is Negatived by his Conduct.

Laying aside what Daniels himself says of having disclosed the machine in controversy to others as his invention, it does not appear that he ever breathed that claim to one of his intimate associates in the works, or to one of the directors, until, after the successful reel tests in 1886, he told Washburn that he (Daniels) was the inventor, his application for patent being the consequence of that conversation. (Morgan, int. 20, p. 61; Washburn, int. 3, p. 187.) The two persons to whom he specifically appeals on this point are Morgan and Angstrom (see letter to Angstrom, p. 46). Angstrom in his deposition (p. 157), taken in Sweden, contradicts Daniels, and

states his understanding and belief to have been that Morgan invented the reel in question (a. 14). He further says (a. 12):

"I do not think that Mr. Daniels would at that time claim this invention as his own, being just then working on automatic reels for Mr. Morgan."

Angstrom was the intimate associate of Daniels in the drafting room, and next to him in rank. Besides Angstrom, other draftsmen employed at that time have gone on the stand—Metcalf, Barker, Hemingway, and Scott, as well as the masterworkman, Young—none of whom ever heard Daniels claim this device as his own.

Daniels' counsel, on his behalf, appeals to Young, who built the reels, for his understanding as to the inventorship of them, but though he would be only too glad to oblige, Young could not fill this void in Daniels' case (p. 196, int. 7).

This silence of Daniels, utterly inexplicable if he was the inventor, is a fact that tells strongly against his present pretensions.

The Record discloses numerous occasions where Daniels was called upon to assert his claim, occasions of such a nature that the failure on his part to do so is reconcilable only with the supposition that his present claim is unfounded. The proof afforded by this conduct is conclusive of the matter. The leading authority on this point is the decision of this Court in Atlantic Works *v.* Brady (107 U. S., 192), from which we quote:

"The witnesses who speak of his conversations and sketches in December, 1865, and early in 1866, as communicated to them with the utmost freedom, with no apparent object, so far as they were concerned, *must either be mistaken as to the time or as to the devices described.* Interested as he is in the result of the suit, his own testimony can not be allowed to prevail against a course of conduct so utterly at variance with it. It may be true;

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but we can not give it effect against what he himself did and did not do, *without disregarding the laws that govern human conduct.*"

(1) If Daniels had conceived this idea, as he says, in July, 1878, he would have spoken to Morgan about it, first of all. That can not be doubted. It was then the subject uppermost in the minds of both, and Morgan's attitude towards the young man at that time was almost paternal. Daniels himself said that he, at that time, habitually communicated to Morgan all his ideas without reserve (p. 178, int. 63). Daniels gives no reason for withholding this idea from Morgan. He is inventive enough to have given one if he could.

(2) On July 19 Morgan explained to Scott and Daniels a plan for removing the coil from the reel (Morgan, p. 105, int. 248; Scott, p. 119, int. 26), as is established by memoranda made at the time. If Daniels had a plan of his own for the same purpose, which he claims to have spoken of *the very next day* (July 20) to Fowler "with no apparent object as far as he was concerned," here was an occasion that would naturally have impelled him to speak of it. No one was more interested than Morgan in this very problem—no one less so than Fowler.

(3) During the Stover incident there was a special inducement, if not an imperative necessity, for Daniels to speak. Stover had but just invented the discharging plate, and Morgan desired to control it in order that he might have a clear field to carry out his own idea of applying a lifting platform to vertical reels. If Daniels' present story be true, he could have saved the negotiation with Stover and given Morgan just what he wanted, obtaining the credit himself. He could and he would have said, as he now says in his testimony (int. 12, p. 166),

that the idea of the discharge-plate or "stripper" was not new to him, and that he had previously invented it.

Furthermore, the discussion between Morgan and Stover was not only an occasion for Daniels to speak and assert his own claim, but it was a direct encouragement to him to do so, for he was as free then as was Stover to sell his inventions to the company, a privilege he afterwards availed himself of as to other things. But, by his own admission, he stood mute, and we submit that this fact completely negatives his story as to prior conception and disclosure to Fowler and Lambert in July of that year.

(4) Passing now to the period following the abandonment of the reel experiments in 1880, it must be borne in mind that it is a necessary part of Daniels' contention that this abandonment was involuntary on his part, and does not work or imply abandonment of his invention. During this period of inaction therefore he was specially put upon his guard to protect his interests by appealing to the directors, or by filing an application for patent. He did neither. No one in the works up to that time had heard of his claim; whereas we may be sure that if it had any existence, he would have left no one in ignorance of the fact. It would have been simply impossible for him to have refrained from making it generally understood that it was *his* invention that was on trial, and was expected to solve the vexing and momentous question of automatic reeling, after Morgan's plans had failed.

(5) In 1880 Daniels appeared as joint inventor with Morgan in four patents, and in 1883 and 1884 took out eight patents in his own name and at his own expense. (Cross-int. 120, p. 31.) *He did not patent the lifting-platform device*, which he is now bound to say he believed from the first and during all that time was a practical and successful plan of reeling, for to abandon that belief would be to abandon the claim of invention.

(6) There was a cash purchaser ready to take all his patents, for in the Spring of 1885 he sold these patents to the company for $2,500 cash. The fact that the reel was not in operation would not have hindered his patenting or selling it, if he were the inventor, for of the eight contrivances so patented *but one ever went into use.* (Cross-int. 126, p. 31.)

(7) When Morgan resumed charge of the work, September, 1885, and wrote "hold" on the order for construction of two automatic reels, there was special reason for Daniels to declare his interest in the matter. Again he was silent. Morgan expressly and pointedly excluded him from all participation in this work, elaborating it privately at his own establishment, with the aid of draftsmen employed and paid by himself. By his actions Morgan said to Daniels: "You have nothing to do with this work, the invention is mine. I trust you no longer." Daniels was silent and indifferent, and *his* actions as clearly said: "The affair is no concern of mine. I have no interest in it." He can not now successfully contradict his actions, extending over a long course of years, during all of which his attitude towards this device, in the presence of those under whose observations he daily came, was that of an indifferent by-stander.

He reserved his speech until Morgan revived an undertaking which, up to that time, had been a series of failures and losses, and by his individual efforts, and by the exclusion of Daniels and everyone but his own trusted servants, wrought out at last a complete success. It was then *too late* for Daniels to put forward to the directors, to the Patent Office, and to the public the claim that *he* was the true originator of this important improvement, and alone entitled to the reward due to him who gives to the world a new and perfected machine.

The Court, moreover, will see clearly, through the evi-

dence, the motives working under the surface of events—the true springs (though partly concealed) of human actions. It will be evident, we think, that the claims now made by Daniels were due to aspirations and interests in large measure dependent upon the good-will of the Washburn and Moen Company; and that the latter's opposition to and hostile pursuit of Morgan are prompted by considerations of self-interest, and not by the disinterested desire to obtain due credit to an employé. We have, however, endeavored to confine ourselves to the consideration of the single question whether the evidence justifies the reversal of the Commissioner's act in granting a patent to Morgan. As to that our conclusions may be summed up as follows:

1. Morgan is the person who "first perfected and adapted the invention to actual use." He is moreover admittedly "an original discoverer." Therefore, even if all that Daniels claims be admitted, Morgan is nevertheless in law and in fact the "first inventor and entitled to the patent."

2. The claim of Daniels to a prior conception of the idea of a vertical reel with lifting platform in July, 1878, is not established by the evidence, and there is no proof of disclosure by him of this idea to Morgan at any time.

3. This claim of inventorship by Daniels, resting as it does solely upon the assertions of the interested party himself, is irreconcilable with and contradicted by his conduct during the development of the invention.

We respectfully submit that the decree of the Court below should be reversed.

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ANTHONY POLLOK,
PHILIP MAURO,
Of Counsel for Appellant.

313

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SUPREME COURT OF THE UNITED STATES.

CHARLES H. MORGAN,

DEFENDANT AND APPELLANT,

vs.

FRED. H. DANIELS,

COMPLAINANT AND APPELLEE.

FROM U.S. CIRCUIT COURT, DISTRICT OF MASSACHUSETTS.

BRIEF FOR APPELLEE.

ROCKWELL & CHURCHILL PRESS, BOSTON

Supreme Court of the United States.

No. 313.

CHARLES H. MORGAN, APPELLANT,

v.

FRED. H. DANIELS.

BRIEF FOR APPELLEE.

The only question in this case is a pure question of fact, namely:

Is Daniels or is Morgan, the original and first inventor of a certain improvement in machines for coiling wire or wire rods?

The bill alleges that Daniels is the first inventor, and that Morgan is not; and the Circuit Court decreed the question of fact in favor of Daniels, and also in terms against Morgan. Record, pp. 5 and 6.

The opinion of the Court (pp. 255 *et seq.*) contains no hint or suggestion of any question of law.

No Assignment of Errors was filed in the Court below, nor in this Court; and the Appellee is wholly uninformed as to the errors specified by the Appellant, unless that part of Brief for Appellant on pages 8 to 12 can be called an Assignment of Errors, as well as a specification of the errors relied upon.

The first error specified in Appellant's Brief, p. 8, is that the Court erred in holding that a drawing, Exhibit Daniels' Drawing 1, embodied the invention in a complete material form. But obviously this is a pure question of fact.

The second error specified (p. 9, Appellant's Brief) is, that the Court erred in holding that Daniels was the author of the design ex-

emplified in that drawing, Exhibit Daniels' Drawing 1. This is also a pure question of fact.

(The argument as to this error is out of place in a specification of the errors assigned, and is wholly baseless, as it assumes, without the shadow of warrant, that the paragraph quoted from the opinion of the Court states *all* the evidence on which the Court "bases the finding.")

The third error specified (p. 10) as to "a fork attached to an overhead track" seems not only a pure question of fact, but also wholly immaterial.

The fourth error, which was possibly intended to be specified (on pp. 9, 10, and 11), is to the effect that the Court erred in deciding that Daniels was the author of the design exemplified in the drawing, Daniels' Drawing 1, by reason of certain other errors as to fact, but this is a mere restatement of the second error specified.

The fifth error specified (p. 12) is, that the Court erred in not giving due weight and proper legal effect to two alleged facts. These two facts are called "admitted facts," and if either were admitted their due weight and proper legal effect might be a question of law; but both are denied, for Morgan was *not* an original inventor of the combination in question, nor was he the first to perfect and adapt the invention to actual use. As to this fifth error, therefore, the first question is as to these two questions of pure fact, and as they are both settled against Morgan by the decree of the Court below, the legal question cannot rise in this Court.

The other errors "consist mainly in not giving weight to the evidence furnished by the conduct of Daniels" (p. 12), and must be picked out, if found at all, from pages 13 to 25 of the Brief, and are, therefore, disregarded.

In the case of clear error as to questions of fact this Court will revise the decision of the Court below; but it is submitted that none of the errors specified are in that category, and that the decree should be affirmed for that reason. It will be apparent from the opinion of the Court below that there was evidence to support the decree; and it should not be reversed because of conflicting evidence, or because of any argument that too much weight was given to some parts of it, or too little weight to other parts of it, by the Court below.

COMMENTS ON BRIEF FOR APPELLANT.

At the bottom of p. 8 and top of p. 9 it is said that the reels shown in Patents 220,300 and 224,941 are "pouring reels," as distinguished from "traction reels." This is an error as to 220,300, which shows "traction reels," as will be clear from p. 220 and p. 221 of the Record, for the first end of the hot wire rod is automatically seized and held by the mechanism on arm *S* (the dog *n* in head *T*), and wrapped about the reel. There is nothing in this patent 220,300 remotely resembling a pouring reel. Patent 224,941 is not in the Record; but if a copy of it be produced at the argument, it will be seen that it shows one form of pouring reel.

Page 5, line 4, "by direction of Morgan" should be "with Morgan's knowledge and assent," and the statement a few lines below, that it is an undisputed fact "that the drawing was made by" Daniels by Morgan's "direction," is an error. The fact is disputed.

Page 6. As to the original reel built and tested in 1879, and altered in 1879 and 1880, it is disputed that it was a failure, and it is also disputed that it was destroyed by Young as a useless incumbrance; and Daniels contends that it was solely because of Morgan's pecuniary interest in another invention that it was not put into successful use in 1880; and that it was destroyed solely because of Morgan's having determined to claim the invention as his own.

The statement near the middle of page 6, that Daniels's connection with the work on automatic reels ended in the spring of 1880, is an error. In the spring of 1880, Morgan, Daniels' superior officer, put an abrupt stop to the completion of the 1879–80 reel, although it might and would have been put into successful operation during the spring of 1880, but for Morgan's veto; and it was not until Morgan left the employ of the Washburn & Moen Company in 1885 that Daniels was allowed to press the enterprise; but as soon as Morgan left, Daniels obtained Order No. 113 from Mr. Washburn, and before Morgan's return in September, 1885, Daniels had again commenced the rebuilding of the 1879–80 reels.

Page 13. The second paragraph begs the whole question; and no one of the so-called "undisputed facts" is either a fact, or undisputed.

The subject-matter in dispute is incorrectly defined in the third paragraph. It is a *pouring* reel with a lifting platform; and a

traction reel on a vertical axis with a clearer or clearing platform is a radically different thing, although within the definition of the third paragraph; and a traction reel with a horizontal axis is the same in substance as a traction reel with a vertical axis.

Page 14 refers to the traction reel with a horizontal axis, and Morgan's alleged invention of October, 1878, is *not* the invention in controversy, and is nothing more than the Stover reel turned up.

Pages 22 and 23. The discharging plate was not new with Stover, and Stover's reel is nothing but a traction reel with a discharging plate, and a device for seizing the first end of the rod; radically unlike the invention in controversy: and practically worthless.

Page 25. As to the three points made: (1) Morgan is not the person who first perfected and adapted the invention to actual use; but he is the person who prevented Daniels doing that in 1880, and again in 1885. Morgan is not admittedly an original discoverer of anything except the alleged combination of a traction reel with a vertical axis, a clearing-plate, and a device for seizing the first end of the rod, or the Stover reel turned up. Moreover, his alleged invention of October, 1878, was merely "the casual thought that the disk attached to a shaft concentric with that of the reel might be used to discharge the coil." (Record, p. 257.) (2) While it is true that Daniels conceived of the invention in controversy in July, 1878, and improved it from time to time in the fall of 1878 and winter of 1878–9, the more important fact is that he showed it to Morgan in the early part of 1879, and immediately afterwards made Daniels' Drawing 1, as to which the court below states: "I have no doubt that the origin of the first drawing was precisely as described by complainant in his answer to interrogatory 27." (Int. 27 is on p. 14 of the Record.) (3) Even disregarding the testimony of Fowler and of Lambert, Daniels' right as inventor of the reel in controversy does not rest solely upon the assertions of himself; for there is no proof that Morgan ever made the invention in controversy; and the fact that he is forced to rest his whole case upon the "casual thought" as to which he is partially corroborated by Stover is fatal to his case.

There is a serious mistake of law in the first paragraph on page 10 of Brief for Appellant; for Morgan is treated as "the grantee of letters patent" and Daniels as a mere applicant; and the burden of

proof is said to be on Daniels, to show priority "beyond a reasonable doubt."

In fact, Morgan filed his application June 24, 1886, and Daniels filed his application two days later, June 26, 1886. Therefore, the burden on Daniels is to show priority "by a clear and undoubted preponderance of proof," as stated by the Court below. (Record. p. 257.)

Although it is submitted that no further argument in behalf of the Appellee is necessary, yet the Brief of the Argument in the Court below is appended; for it is submitted that not only is there evidence to support the decree, but also that that evidence fully justifies all the findings as well as the conclusion of the Court below.

Respectfully submitted, by

J. E. MAYNADIER,
Of Counsel.

Circuit Court of the United States.

DISTRICT OF MASSACHUSETTS.

IN EQUITY.

No. 2684.

FRED. H. DANIELS *v.* CHARLES H. MORGAN.

COMPLAINANT'S POINTS.

This is a Bill in Equity filed under Sec. 4915 U. S. Rev. Stats.

Daniels filed his application for Patent, June 26, 1886, and Morgan filed his application, June 24, 1886.

There is no doubt that the invention was made many years before, and the complainant contends that it was reduced to practice in the fall of 1879; but it was not put into daily use until 1886; and both parties filed their applications with due diligence after the invention went into use.

Both parties were in the employ of the Washburn & Moen Manufacturing Company, and Morgan was Daniels' superior officer during all the time covered by the testimony, except for a few months in 1885. It will be clear from the testimony that during the years 1877 to 1886, both inclusive, with the exception of a few months in 1885, Daniels could do nothing whatever towards putting the invention into use; while during all those years, with the exception of a few months in 1885, Morgan had the amplest opportunity to put it into use.

This fact is here adverted to, somewhat out of its natural order, simply as showing that the delay of nearly eight years in filing applications for patent cannot hurt Daniels more than it hurts Morgan; but it will be submitted confidently that this great delay is a circumstance which weighs very heavily against Morgan; so heavily as to make it probable in a high degree that he is *not* the inventor of the

machine in controversy; and that he was interested to prevent its use before the fall of 1885.

THE INVENTION.

Prior to 1879, the wire-rods rolled by the Washburn & Moen Manufacturing Company, were the product of a continuous mill: that is a rolling-mill made up of a number of pairs of rolls so arranged that the hot billet passes from the first to the second, from the second to the third, and so on. As the billet was reduced in cross-sectional area by each pair it was necessary to give the second pair a surface speed a good deal greater than the first pair; and the third pair a still greater surface speed, the final pair requiring a surface speed of almost thirty feet per second, faster than a mile in three minutes.

The first end of the hot wire-rod leaped from the final pair of rolls over a large floor of iron, and the wire-rod, as it streamed from the final pair of rolls, was flirted in loops over one side of the iron floor, when a nimble attendant ran upon the floor, seized the first end with his tongs, and thrust it through a hole in the screen of plate-iron, and between the fingers of a reel. As soon as the first end of the hot wire-rod was thus connected with the reel, an attendant set the reel in motion, and rapidly quickened its speed until the loops of hot wire-rod were taken up off the iron floor, and the hot rod extended in a long sag from the reel to the final pair of rolls; when the speed of the reel was carefully regulated to take the rod about as fast as it was delivered by the final pair of rolls. This reel was a *traction* reel; that is, it pulled the hot rod first from the iron floor and then kept it under strain between itself and the final pair of rolls: and in this and all other *traction* reels the speed of the reel must be regulated with great nicety during the whole operation.

In order to roll small wire-rods without decreasing the total product it would have been necessary to add extra pairs of rolls to the continuous mill: but these extra pairs must be speeded far higher than thirty feet per second, which was impracticable, because of the greatly increased danger to the attendants.

With the invention in controversy the former limits of speed of the final pair of rolls have disappeared; as the iron floor and traction reels are abolished, for the reels are set so near the final pair of rolls that the hot rod can be passed directly into the reel while the reel is revolving rapidly.

The first end of the rod falls upon the annular lifting plate or spider, or movable bottom of the reel, whose surface speed varies, being most rapid near the outer edge, least near the inner edge, and greater and greater from the inner edge outwards. For this reason the first end of the wire-rod bears upon a horizontal surface which is moving more rapidly than the first end of the rod is moving, for the first end of the rod shoots across the annular surface of the lifting plate or spider, and rests upon the outer edge: and the friction of the first end of the rod against the lifting plate and the rapidly revolving rim or the outer wall of the reel causes the rod to be coiled up, between the rim or outer wall and the inner circle of spokes concentric with the outward wall or rim. This together with the beautiful adaptation of the contrivance to the varying speeds of the rod, are the most striking features of the invention, for although the speed of the reel is constant, yet when the wire-rod is pulled on, — that is called for faster than the final pair of rolls deliver it — it instantly moves nearer the centre of the rapidly revolving annulus and finds a circle where surface speed suits it; or if the rod is delivered faster for a moment than the surface speed of the circle of the annulus which supports it, it instantly moves farther away from the centre and finds a new circle whose speed suits it.

The speed of the wire rod as it issues from the final pair varies a few feet a second from time to time; but these variations of speed of the rod are all automatically cared for, although the speed of revolution of the reel (and of the annulus, which is the spider or clearer, or movable bottom of the reel) is constant.

The tub reel or pouring reel without the movable bottom or spider or clearer is shown in patents issued several years before 1886; these patents are referred to in the record, and are No. 224,941 to Morgan, and 224,942 to Morgan and Daniels as joint inventors. The applications for these patents were filed on the same day, Feb. 20, 1879, and the main novelty described in both, *but not claimed in either*, was an invention of striking novelty and vast importance, because it did away with the iron floor and with the traction reel, and with all the limitations of speed incident to that floor and to the *traction* reel.

A *pouring* reel is a receptacle into which the hot rod enters while the reel is in rapid revolution, which needs no regulation as to speed, which does not pull upon the rod positively, but the rod seeks auto-

matically that part of the annular bottom portion of the reel whose surface speed suits the speed of the rod. A *traction* reel is one to which the first end of the hot rod must be made fast in some way, and whose speed must be carefully regulated to prevent too much slack between the reel and the final pair of rolls, or to prevent too great strain on the rod. The invention now in controversy is not broadly the pouring reel, but is the pouring reel with a movable bottom supported on a shaft, which is moved endwise through the reel shaft.

The movable bottom, or supporting platform, or spider, or lifting plate, as this element of the combination is variously called, has all the functions of a stripper or clearer, and has, in addition, all the functions of the annulus as above described. Daniels' 7th claim as originally filed (p. 210), is for the combination of (1) "a rod-coiling receptacle or reel;" (2) "a spider or *lifting* plate;" (3) a central shaft supporting the lifting plate; (4) the reel shaft, and (5) means for elevating the central shaft and lifting plate; substantially as set forth in his specification and shown in his drawings. The 8th, 9th, 10th, 14th, and 15th claims as originally filed are to the same effect. These claims are numbered in brackets, 5, 6, 7, 8, 11, and 12 (pp. 210–11), and the prayer of the bill is in substance that Daniels be adjudged entitled to receive a patent with these claims.

The combination of a stripper or clearer with a traction reel is shown in Prosser's patent, No. 206,197, dated July 23, 1878; and it is submitted as too clear for argument that after Prosser's patent it is not invention to use the familiar device of a stripper or clearer with *another form* of traction reel. Were the question whether there is any invention after Prosser's patent in using a stripper or clearer with a pouring reel, as distinguished from a traction reel, it would be urged that (1) it supports the hot rod and performs all the striking functions theretofore performed by the bottom of the pouring reel, and (2) it lifts and sustains the coil when used as a stripper or clearer, and (3) it leaves only a single function to the true bottom of the reel, viz.: the function of connecting the rim and circle of spokes with the reel shaft. The question of invention in this case is not the broad question above suggested, but a more limited one; for none of the claims is broadly for a stripper or clearer in combination with a pouring reel, but each is limited to a definite combination of instrumentalities, and each involves something material in addition

to the mere broad idea of using a stripper or clearer with a pouring reel, as distinguished from a traction reel.

Suppose, as is very likely, that yarn or twine, or the like has been coiled by traction upon the fingers of a vertical reel and above a stripper, could it be pretended that that anticipated or had any tendency to anticipate the invention in controversy?

DANIELS ABUNDANTLY QUALIFIED.

Although Daniels was at that time about twenty-five years of age and wholly inexperienced as to patents, yet it abundantly appears that he was peculiarly qualified (not only by his training in a Technical Institute, but also from the fact that he had enjoyed opportunities second to none for acquiring the fullest information possible), as to the production of wire-rods both in this country and in Europe. It appears from the testimony of Mr. Washburn "that Daniels was thoroughly conversant with the line of machinery which it was his main mission to examine, and was a first-class engineer in that line," and that he (Washburn) was convinced that Morgan and Daniels together could accomplish much better work than Morgan could alone. (2 pp. 185–86.) Washburn also says in answer to Cross 19, p. 188: "He (Daniels) had been with us some years, six years more or less, I should say; and with reference to his aptitude for the particular business he was employed at here, in the first place I knew he was a graduate of our Technical School here: I knew he had been for some time at the head of our Drafting Department, which implies a high degree of skill and aptitude in this concern, and further, I had received the impression from Mr. Morgan, from time to time, that he was an excellent man for the place he was filling, the next man to Mr. Morgan on the premises in rank as to all mechanical matters: I especially was impressed at that time — when we sent him abroad to be with Mr. Morgan in 1878, — that probably there was no man in the country, including Mr. Morgan himself, who was so thoroughly posted in detail with reference to the subject of Rolling Mills in this or in the old European countries. The fact is, he had but just returned in the summer of 1878 from a trip commenced by him in Europe about a year before, which had been prolonged some months beyond his original plan by especial request of our Board, in order that he might, in view of his previous experience, exhaust as fully as possible the whole subject in certain

other countries of Europe, as he had already, as we believed, so thoroughly accomplished with reference to the state of the art having reference to wire-rod machinery and rolling mills in Sweden." (pp. 120–21–22.)

Mr. Moen testifies as follows: —

"Mr. Morgan made a statement to us that Mr. Daniels was a valuable man to the corporation in respect to his abilities as an engineer and draughtsman, particularly in the matter of constructing rolling-mills, wire machinery, and other machinery connected with our business; and if he (Mr. Morgan) should leave our employ by reason of death or removal, he knew of no other person who could fill his (Morgan's) place so well or better. We had so much confidence in Mr. Daniels' abilities as far back as 1878, that we sent Mr. Daniels to Europe to join Mr. Morgan, who had already departed three or four or five days before. Mr. Morgan's special mission in behalf of the company was to look up the matter of the best constructions of rolling mills, both past and up to the time of their visit to Europe. Aside from Mr. Daniels' evident abilities in this direction, we were induced to have Mr. Daniels join Mr. Morgan, as Mr. Morgan had at different times when he went on trips of investigation for us, stated that he had found them advantageous to have another bright and observing person make observations with him at the same time."

In addition to this highly gratifying statement from Messrs. Washburn and Moen, it is also perfectly plain from the deposition of Mr. Morgan, that he himself looked upon Mr. Daniels as a man of very marked ability, and it is clear from the testimony of both Daniels and Morgan that up to February, 1879, each had the highest respect and regard for the other. Although Mr. Morgan, unfairly it is submitted, attempts to show that Daniels' astonishingly rapid rise at Washburn & Moen's factory, was simply due to his (Morgan's) liking for him (Daniels), it is nevertheless obvious that Daniels' rise had far more substantial basis, and that basis is Daniels' marked ability, faithfulness, and integrity.

DANIELS' DATE OF CONCEPTION.

Attention is next asked to the testimony of Daniels, Lambert, and Fowler, and it is submitted that the testimony of these witnesses proves beyond a doubt that Daniels conceived the invention in con-

troversy as early as July, '78. It is too plain to require argument that if Daniels and Lambert are credible it establishes Daniels' conception as early as July, '78.

The commissioner, therefore, practically denies that Daniels and Lambert are credible, and while he does not go so far as to deny that Fowler is credible, he decides that his testimony can easily be explained away.

In disposing of Daniels, Lambert and Fowler, a point is made that the absence of certain sketches not offered in evidence is not accounted for. While this is strictly true, it is submitted that it is wholly natural and not at all surprising that Daniels should not have preserved the sketches shown Lambert and Fowler, for they were made for one single purpose, that is to give to Lambert and Fowler a clear and full idea of what Daniels was talking about, and that there is no evidence tending to show that they were gathered up and preserved by any one. The simple and natural fact is, that the first sketch which Daniels has been able to find is Exhibit Daniels' Sketch 1, and the probable reason why this sketch was preserved is, that it tends to show very much more than a mere conception of the invention in controversy; that is, shows that Daniels was then working upon a previous conception and that his mind when he made Daniels' Sketch 1 was concerned with the details of construction of a pair of reels each embodying the invention in controversy. A scrutiny of Exhibit Daniels' Sketch 1 and 2, will show they are studies such as inventors almost always make when they seriously undertake to perfect an invention already conceived; for although Daniels' sketches are rough, there can clearly be seen in them a pair of reels each provided with a spider or platform for supporting and discharging the coil, these platforms being actuated by a central vertical shaft, a lever, cylinder, piston and piston rod in sketch 1, and in sketch 2 by a cylinder whose piston rod is in line with the shaft of the spider.

In Int. 17 p. 12, Daniels was asked to produce *all* the sketches "you *now have* showing" the invention in controversy, and he produced the sketches put in as Exhibits Daniels' Sketch 1, 2, and 3, and it is submitted that this sufficiently accounts for all the sketches shown Lambert and Fowler, for it would have been idle to have asken him where the other sketches were, as his answer would obviously have been, that he could not tell, as they were not preserved.

As to the testimony of Lambert, it will appear from the deposi-

tion of Lambert that he is a man of some peculiarities, but it will also appear that he is a man of sturdy character and that he has been employed for more than sixteen years with a single break when he was hired away from the Washburn & Moen Company, and that he was regarded by Morgan, as well as by Mr. Moen, as a workman of great skill and general ability. Morgan says (119, p. 79): "He was a capable, prompt, vigorous, skillful workman when in his best condition." Mr. Moen in his second answer (p. 161) gives Lambert a very high character in every respect; he says, "He has in all these years shown himself to be a very intelligent, capable, faithful, and devoted workman, who always gave satisfaction," and Mr. Moen produces a table, Exhibit Lambert's Time, which shows conclusively that Mr. Morgan's insinuations as to Lambert's dissipation (120, p. 79) is almost, if not wholly, baseless. See also Daniels, 66 p. 237.

Lambert was, in fact, as the evidence conclusively shows, an all around worker, who modestly states that he is a tin-smith, but in fact he is a worker in sheet iron of every description, and tin worker in all departments. A confidential man of such character and skill as to be trusted to make models, and this was one reason why Daniels asked him to make a model of the invention in controversy.

Morgan's attempt to discredit Lambert, not only fails wholly but should, it is submitted, have some weight in discrediting Morgan. It should be remembered that when Lambert testified, Morgan was still in power as General Superintendent of the Washburn & Moen Company, and that he remained so until he resigned in May, 1887.

One reason alleged for disregarding the testimony of Lambert is, that Lambert was so busy that "he merely looked at" the sketch that Daniels brought him, but this is not what Lambert says. What he does say is, "I was very busy, I looked at the sketch and told him I had not time . . . we talked a little and I looked at the model [meaning the sketch], and I asked him if he proposed to have a man put his foot on that all day, he said yes. I said, well he would be d—— tired." This does not show that Lambert *merely* looked at the sketch, but it does show, it is submitted, that he examined it carefully enough to understand just what Daniels meant to describe including construction as well as operation, for although at first sight, a workman might lift a hundred pound coil of wire by means of a treadle, yet on reflection it will readily be seen that when

that work has to be done at least twice a minute for a working day, it would be excessive.

Another point relied upon to discredit Lambert, is that in the model made by Lambert, Exhibit Lambert Model, the supporting and discharging platform was convex and that this fact is significant for the reason that "no reel prior to '86 was made with a lifting platform which was convex." But as a matter of fact, the platform shown in Exhibits Daniels' Drawing 1, 2, and 3, is convex over the greater part of its upper surface, and what is more to the point, there is not a particle of proof tending to show that any reel, after the first one made in the fall of '79, was made with its surface more convex than that shown in Exhibit Daniels' Drawing 1, 2, and 3. As a matter of fact, the drawings of Morgan's application show radial arms which are straight and not curved, and there is not a particle of testimony in the case tending to prove that anybody ever suggested a lifting platform convex on its upper surface, except as shown in Exhibits Daniels' Drawing 1, 2, and 3, and Exhibit Lambert Model.

The singular circumstance is, that had Lambert made his model with the upper surface of the platform flat and not convex, the point, although a weak one, would have been well taken; but the point actually taken and urged is a mere blunder, not based at all upon the testimony, but based wholly, so far as can be discovered, upon erroneous assertions in a printed argument filed before the Examiner in behalf of Morgan.

Although this may at first sight seem a trifling matter, yet in view of Lambert's high character for skill, intelligence, uprightness, and steadiness, it is deemed the duty of counsel to make it clear that Lambert must have made the top of the platform convex if his recollection was his guide, and that the assertion that all reels made before 1886 had platforms either flat or concave, and that Morgan found it necessary in 1886 to make them convex, is wholly baseless and directly contrary to the fact; and that when the Examiner of Interferences made these erroneous statements he did gross injustice to an upright, honorable man. Had Lambert been influenced at all by his observations in 1886 of the reel shown in the drawings of Morgan's application in controversy, the platform in Exhibit Lambert Model would have been made of radial spokes each straight, and the only change in the form of the platform spoken of by

Morgan in Qs. 115 and 116, p. 79, was making the spokes a little longer than the length of the arms shown in Exhibits Daniels' Drawings 1, 2, and 3. The fact is, as far as the platform in Exhibit Lambert Model is concerned, Lambert got the original inferior form. A reel built according to Lambert's model would be defective on account of the wires wedging between the edge of the platform and the walls of the reel, as fully explained by Daniels. (Ans. 65, p. 178). Moreover it is certain that Lambert did not get from any of the reels, whether those made in 1879 or afterwards, the foot-power lift and the peripheral rim without inwardly projecting spokes; and had his memory been effected at all by what he saw in 1879 or since, his model would have shown ribs or spokes projecting from the interior of the rim, or a hydraulic cylinder in place of the treadle or a double circle of reel fingers, with radial spokes for the platform as in the drawing of Morgan's application in interference.

Lambert's language is peculiar, but that is because he is a foreigner. It is submitted that his honesty appears from his whole deposition as well as that quality can ever appear in any testimony taken by deposition.

It has been argued that it would be impossible for a witness to remember events which transpired so many years ago, but it is submitted that this is not at all remarkable in view of Lambert's mental capacity and his peculiar aptitude for matters mechanical. Moreover, the reel described by Daniels to Lambert in July, 1878, was perhaps the simplest machine possible to conceive of, and it differed radically from any machine of the kind theretofore known. Lambert was familiar with the large floor of the old process, and he would be the stupidest of men if he could not have remembered distinctly a simple tub mounted on a vertical axis and having a plate in the bottom of the tub for receiving, supporting, and discharging a coil of wire-rod, and thereby dispensing with by far the most conspicuous and objectional features of the old process, — the iron floor and the traction reel.

The Examiner of Interferences has also much to say because Lambert used not only his memory but his judgment in making Exhibit Lambert Model. What Lambert was asked to do in 1886, was to reproduce from memory as well as he could a model showing what was described and explained to him nearly eight years before. Had

the thing described to him in July, 1878, been a mere improvement on some old contrivance, or had it been a complicated matter with many and complex devices combined, the task of making a model of it might have been difficult, but it was simple and striking in the very highest degree. It is probably within bounds to say that any man who had ever seen a continuous wire-rod rolling mill in operation on the old plan, would be much more struck by the wonderful spectacle of the red-hot wire-rod leaping for twenty feet or more through the air and afterwards spread in glowing intricate folds over the large iron floor, then seized by the spry, vigilant attendant who rushes upon the floor for that purpose, then gathered up, fold after fold, by the traction reel until it extends forty feet or more from the last pair of rolls through the guide-plate to the reel, than by any other single thing in any manufacture carried on in this country; and when a man familiar with this had explained to him the perfectly simple and probably complete device for doing away with this iron floor and all that it implies, as Daniels explained it to Lambert in July, 1878, it is incredible that he should have forgotten it. The only judgment required would be as to dimensions and proportions of parts of the model necessary to illustrate his recollection. Lambert of course had to determine by judgment how high and how long, and how wide, and thick, and how heavy to make the parts, but his recollection supplied him with everything in any way material to this case.

Lambert saw the reels in controversy that in 1879 (pp. 35–36), and parts of these reels were around the works where they could be seen until 1885, when they were mostly destroyed, and these facts taken in connection with the fact that the plan was wholly new and radically unlike anything before known, made it in the highest degree probable that he should remember very minutely the details of the description by Daniels in July, 1878.

It is submitted with great confidence that, taking into account the kind of man Lambert is, and the fact that he had been nearly eight years employed in Washburn & Moen's factory, and the fact that he witnessed the first trial of the reels in controversy in the fall of 1879, all strongly tend to make it impossible that Lambert should ever forget when and where and from whom he first heard a description of the magnificent invention in controversy.

Fowler's honesty is not disputed, but it will probably be argued

that the device which Fowler states was explained to him by Daniels in July, 1878, is not the device in issue.

What Fowler says, is this: — "He (Daniels) explained by rough sketches the arrangement he had for coiling the wire after it was delivered from the rolls, which was a round box mounted upon an upright shaft and in the bottom of the box was a plate, perhaps I should say a movable plate which could be lifted for the purpose of raising the coil of wire. This was his method of getting hold of the coil to get it out of the box." (Ans. 3, p. 22.)

It will be seen that he says "a round box" and also "in the bottom of the box was a plate," and yet the Examiner decided that he probably means something absolutely different; that is to say, that by "a round box" he probably means a disk with a circle of fingers projecting from its upper surface and not a box at all; that by the "bottom of the box" he does not mean anything whatever: and that by "a plate" he means a fork with a long handle hung from an overhead track, although what he says is, that the plate was in the bottom of the box.

There seems to be no reason whatever why the Examiner should have taken this strange unaccountable view of Fowler's testimony. It is submitted that it is absolutely baseless in fact and amounts to a perversion of Fowler's testimony.

The suggestion of the Examiner is wholly inconsistent with ordinary intelligence on Fowler's part. The main point in the invention in controversy is a plate, spider or platform which is "in the bottom" of a coil receptacle, and upon which the hot wire-rod pours from the final pair of rolls; this plate serving not only to receive and support the coil of hot wire-rod, but also to lift it up out of the receptacle.

It seems obvious that unless both Lambert and Fowler shall be disregarded, Daniels is entitled to judgment of priority, and the point now urged is, that there is nothing whatever in the case tending in the slightest degree to throw anything resembling discredit upon the testimony of either Lambert or Fowler, but the contrary; that is to say, that neither is shaken at all upon cross-examination, that each speaks as an honest and upright witness and that the nature of the invention is such that it is only natural that each should have

been greatly impressed when it was described to him and that it is highly improbable that either could ever forget it.

In short, unless Daniels, Lambert, and Fowler be corrupt, it is abundantly proved that Daniels conceived the invention in controversy as early as July, 1878.

If that be the date of Daniels' conception, it is an end to the case, for the relations of Daniels and Morgan were such, that if one of them is the inventor it is certain that the other is not. The main question in the case is as to Exhibit Daniels' Drawing 1 or Exhibit Morgan No. 5, the latter being a copy of the former. Daniels testifies positively that he is the sole author of Exhibit Daniels' Drawing 1, and Morgan testifies that Daniels was a mere draughtsman in making that drawing and that he (Morgan) is the inventor of all that that drawing shows.

This is an irreconcilable conflict, and it is certain that one of the two tells the truth and the other does not, while it is also certain that if Lambert and Fowler corroborates Daniels' story as to his conception in July, 1878, Daniels is to be believed while Morgan is not, as to Daniels' Drawing 1.

In addition to Lambert and Fowler, Hemenway makes it clear, that some time, at least before Exhibit Daniels' Drawing 1 was completed, Daniels described to him the invention in controversy, and Hemenway's testimony adds to the already very strong probability that Daniels has the right of the matter. (Hemenway's deposition is on pp. 24–26.)

MORGAN NEVER MADE THE INVENTION.

It is believed that the decisions in favor of Morgan were not only due to errors in weighing the testimony of Daniels, Lambert, and Fowler, but also to a misconception of the invention in controversy. The reel proper of Morgan's model shown in the drawings of patent No. 220,300, does not differ from the Prosser patent, or the Stover patent, except as to the contrivance for connecting the first end of the hot wire-rod with the reel; that is to say, all three act by traction and neither of the three has any hint or suggestion of that essential feature of the invention in controversy which consists in pouring the hot wire-rod into a receptacle in which it is received in the form of a coil, or in the words of the issue neither of these has "a rotating coiling receptacle or reel for receiving and laying in coils the

rod as it is delivered from the rolls." This controversy has nothing to do with reels in which the first end of the rod was so held to the reel that the reel became a *traction* reel, but only with reels or receptacles in which the rod is poured into a revolving tub the varying surface speed of the bottom of this tub accommodating all variations of speed of the hot wire-rod.

In Morgan's preliminary statement he fixes the date of his conception as "about the months of March and April, 1879," but after the testimony of Daniels and the witnesses on his behalf had been taken, Morgan produced Mr. Stover as a witness who testified that he for the first time saw the Old Process in operation in October, 1878, and was then told some of the practical troubles with it, and then for the first time saw the prime importance of getting rid of the iron floor. "I then set to work to invent some machine for this purpose:" that is, for picking up the wire immediately after leaving the rolls," or what is the same thing, for getting rid of the iron floor of the Old Process. Stover embodied his invention in a model in October, 1878, and took that model to Morgan and explained its working.

It is obvious from Stover's testimony (especially his 3d Ans. p. 51 and his 9th Ans. p. 53,) that Stover and Morgan both regarded dispensing with the iron floor as the main feature of Stover's invention, for Stover in his 3d Ans. says that was his main purpose ("for picking up the wire immediately after leaving the rolls,") and also in his 9th Ans. "Mr. Morgan told me that he had been working at this *same thing*" and that Morgan then showed him the model from which the drawings of patent No. 220,300 were made. It is moreover manifest from Stover's patent No. 219,124 and from Morgan's patent No. 220,300 that the main novelty in each was dispensing with the iron floor of the Old Process by means of a mechanical device "for picking up the wire immediately after leaving the rolls" and it is equally manifest that both these patents describe *traction* reels and that neither of them contain any hint or suggestion, whatever, as to *pouring* reels.

What is exactly the point now urged is, that the application of the Prosser clearer or the Stover clearer to the traction reel shown in Morgan's patent No. 220,300 is not only not the invention in controversy but is no invention at all, for it is manifestly a mere double use.

It is clear that if the reel shown in patent No. 220,300

could be made to work at all, it would be radically unlike the coiling receptacle of the issue, for the reason that the hot-rod would be wrapped around the fingers of the reel and would be supported by those fingers, and not by a clearer if a clearer were used with that reel. The Prosser patent No. 206,197 shows the traction reel, between the fingers of which the first end of the hot wire-rod was inserted by hand as in the Old Process, and the only novelty of Prosser consists in adding a stripper or clearer to the traction reel of the Old Process, and there is no hint or suggestion of doing away with the iron floor nor any hint or suggestion of doing away with the traction reel. The Stover patent No. 219,124 and the Morgan patent No. 220,300 describe mechanical devices by means of which the first end of the rod is automatically connected with the reel (and the iron floor is thereby dispensed with); but there is no hint or suggestion in either of these patents as to "a coiling receptacle;" that is, no hint or suggestion of doing away with the *traction* reel. There are three things shown in Stover's patent No. 219,124: (1) a traction reel, (2) a stripper or clearer, (3) an automatic device for connecting the first end of the wire with the traction reel. Only two of these are shown in the Prosser patent No. 206,197; (1) a traction reel, (2) a stripper or clearer; and only two of the three are shown in Morgan's patent No. 220,300, (1) a traction reel, (3) an automatic device for connecting the first end of the wire with the traction reel, and from this it is plain that Stover's invention was the automatic device for connecting the hot wire-rod with the traction reel, and the stripper or clearer in combination with the traction reel was not new with either Stover or Morgan. It seems too plain for dispute, that after Stover had shown Morgan a traction reel and an automatic device for connecting the hot wire-rod with that reel, in combination with a stripper or clearer, Morgan could not make any invention by applying a stripper or clearer to the traction reel and automatic device shown in his patent No. 220,300.

No reason is seen for doubting or discrediting in any way Stover's testimony, but it is submitted with very great confidence that the Commissioner wholly misapprehended its bearing on the case. The Examiner says, "Stover's testimony is fully corroborative of the statements made by Morgan. The model that he showed to him is offered as an exhibit. An inspection of it (the Stover

model) shows that it embodies the whole issue herein, except that the shaft supporting the reel and discharge plate are arranged horizontal instead of vertical. The construction that Morgan's model showed, and for which patent No. 220,300 was afterwards granted, shows every element of the issue save the discharging platform." If the invention in issue were nothing more than "to turn up the device shown in the Stover patent . . . 90 degrees or to work in a verticle direction" (and *that* is the *whole* of it according to Morgan, 67, p. 72), then it would no doubt be clear that Morgan's testimony corroborated by Stover showed Morgan's conception of it in October, 1878.

But in view of what the invention really is, is it not a fair inference from Morgan's 67th Ans. just quoted, that Morgan never made it? If Morgan had ever invented this simple and beautiful contrivance in issue, which does away not only with the iron floor but also with the traction reel, is it not simply impossible that he should on the 3d of Aug., 1887, have testified, "I first conceived the invention at issue in the above entitled interference on or about Oct. 27, 1878, and on the same day disclosed it to one D. C. Stover"? (Morgan's last amendment to his preliminary statement.)

The Commissioner says that "Morgan showed him (Stover) two models of automatic reels, which were afterwards patented to Morgan, — patents Nos. 220,300 and 224,941, respectively. These models were explained to Stover by Morgan, with the added suggestion that if he, Morgan, could combine the lifting spider or platform of Stover's device with his reel, its value would be much enhanced;" whereas Stover testified as follows: —

"Mr. Morgan . . . brought out *a* model. . . . This model had two reels. . . . He suggested or stated to me that he thought my perforated plate could be used to good purpose on his machine." Ans. 9, p. 53.

"*Q.* 10. Please look at the copy of U. S. Patent No. 220,300 . . . and state whether you recognize the drawings as representing *the* model referred to in your last answer. *Ans.* I recognize this as *the* model. *Q.* 11. Did he show you at that time any other models besides the one you have described? *Ans.* My impression is that he did, but my mind is not clear enough to make any positive statement about it. . . . *Q.* 13. Do I understand you that Mr. Morgan spoke, at the time referred to in your answer to question 9,

of applying your perforated plate to a vertical reel such as shown in the 'Exhibit Patent?' *Ans.* My only recollection in the matter is that Mr. Morgan stated to me that my device for discharging the bundle he thought might be used to a good purpose on his machine — the machine shown under patent No. 220,300." (pp. 52–53.)

Morgan's 30th and 31st Qs. and Ans. are as follows (p. 62): —

"Q. 30. When Mr. Stover showed you and explained to you his invention, did you tell him what you thought of it, and give him your reasons therefor?

"A. My remembrance is that I told him that I could use his discharging device in connection with a reel which I had invented, and of which I had showed him a model.

"Q. 31. Please state what the reel was to which you proposed to apply this movable plate, or discharging device, and if it is shown in any of your patents, please refer to the same by number and date.

"A. The model illustrated in the letters patent 220,300, was shown to him at that time; also the model illustrated by letters patent 224,941, February 24, 1880."

Question 30 was as to what Morgan *told* Stover, and Morgan's answer is full and complete as to what he told Stover; but question 31 drops that topic entirely and is as to what Morgan "*proposed*." Morgan's answer to that question may at first sight seem to mean that *two* models were shown Stover in Oct. 1878, by Morgan, but when taken in connection with the question it is only fair to Morgan to translate his answer substantially as follows: —

I proposed to apply this movable plate in Oct., 1878, to model of patent No. 220,300 and that model was shown to Stover at that time and I then told him what I proposed as to that model, but I also proposed to apply this movable plate to the model of patent No. 224,941, *but as to this I was entirely silent to Stover.*

Suppose for a moment that Morgan had really conceived the invention in issue in October, 1878, and had disclosed it to Stover. Is it not absolutely certain that Morgan's testimony and Stover's testimony would have been radically different? Both of them were then dealing with traction reels, and it is perfectly certain that Stover got no idea from Morgan except as to the use of a stripper or clearer with the traction reel shown in Morgan's patent No. 220,300. Is it not equally certain that had Morgan suggested the invention in issue during his talk to Stover in October, 1878, that his answer to ques-

tion 30 would have been totally different from what it is? Is it credible that Morgan ever made the invention in issue and that his mind is now a blank as to when and where he made it and how he came to make it? Is it not conclusive against him under stress of Daniels' testimony and the testimony of Lambert, Fowler, and Hemenway that Morgan has goaded his conscience up to the point of testifying that this great invention sprang from the obvious conception that a stripper or clearer — a mere "discharging device" — was just as applicable to the traction reel of his patent No. 220,300 as it was to the traction reels of Stover or Prosser?

Morgan's 67th answer, p. 72 is as follows: " . . . it did not at that time [late in 1879, ints. 63–66, pp. 71–72], seem to me a patentable invention to turn up the device shown in the Stover model, heretofore referred to, ninety degrees, or to work in a vertical direction."

THIS IS IN TRUTH ALL THAT MORGAN EVER *invented* (?)

But the reel described in Morgan's patent, No. 220,300, was a *traction* reel with a *single* row of spokes, and with an automatic contrivance designed to seize the first end of the wire-rod and connect it with the spokes of the reel. In short it was in all substantial respects the same as Stover's reel, except, first, the axis of Morgan's was vertical, Stover's horizontal; and second, Morgan's, had no stripper or clearer, while Stover's had.

Daniels never *invented* (?) the combination of a *traction* reel (*i.e.* a reel with a single row of spokes or fingers, and means for connecting the first end of the wire-rod with the reel), and a stripper or clearer; but in July, 1878, he did invent the combination of a *receptacle* or *tub* reel; its shaft; a lifting plate or movable bottom to the tub; its shaft playing endwise in the shaft of the tub reel; and means for revolving both and giving endwise motion to the shaft of the lifting plate; he described this invention to Lambert and Fowler in July, 1878; he worked upon it during the latter part of 1878, and made Daniels' Drawing 1 early in 1879; showed that drawing to Morgan in March or April, 1879; and after Morgan had wasted much time and money in testing his own plans for producing smaller rods, — shown in patents 220,300 and 224,787 — and failed, Daniels induced Morgan to order the construction of a pair of reels as shown in Daniels' Drawing 2; which were completed and tested in the fall of 1879. The few defects were remedied as shown in

Daniels' Drawing 3; and early in 1880, the invention would have been put into daily use by Daniels, aided by Young, had not Morgan stopped the alterations of the 1879 reels.

MORGAN RESPONSIBLE FOR DELAY.

It is clear from Morgan's testimony (Ints. 45–48, pp. 68 and 69, and Cross-Ints. 193–205, pp. 100 and 101, and from Daniels' testimony in rebuttal, pp. 197–202), that for some reason Morgan saw fit to make sundry tests which occupied the spring and summer of 1879 before he would allow any test to be made of the invention in controversy, and the reason for this, it is submitted, is that "Mr. Morgan wished to make a thorough trial of his own plans . . . before adopting my suggestion of a discharging platform in combination with an automatic reel." (Daniels 28, p. 170.)

The first test of the invention in controversy was made in the fall of 1879. Morgan himself says as to this first test, "About the month of Oct., 1879, the construction of a pair of reels was begun and they were finished and tested about the month of Dec., 1879. The construction of these reels was found to be defective in certain particulars. I understood these defects at the time and clearly perceived how the same could be remedied, but did not construct any other reels at that time, because *on account of another invention* the demand for such reels was not pressing, and it was not until the year 1885 that the requirements of business called for the reel that I invented in 1878." While this is all true from Morgan's point of view, it is, in fact, substantially false in many particulars. The main need of automatic reels, by which is meant reels embodying the invention in controversy, that is, pouring non-traction reels, was that the Company might roll wire-rods of much smaller diameter than it was practical to roll with the old process, and Morgan and Daniels were both occupied during almost the whole of 1879 and the latter part of '78 in providing a method of reeling which would enable smaller rods to be rolled without diminishing the product in tons, and therefore which would permit a large increase in the speed of the wire-rod as it left the last pair of rolls.

There was no more important matter than this under consideration in 1878 and afterwards. Morgan, unfortunately, was interested pecuniarily to prevent the solution of this problem of small rod roll-

ing, for his own pecuniary interest, for he and his son, Chas. H. Morgan, were receiving large royalties from the Washburn & Moen Company under patents for Salt Coating Process, and this process was necessary only when the larger rods were to be drawn into wire.

The invention in controversy was tested in the fall of 1879, and the reels with which that test was made are shown in Exhibit Daniels' Drawing No. 2, and it is abundantly clear from the testimony of both Daniels and Morgan that this invention was the practical solution of the problem of rolling small wire rods. It is true that the reels were defective in certain details of construction, but Morgan himself says, "I understood these defects at the time, and clearly perceived how the same could be remedied," and they were in fact remedied, as shown in Exhibit Daniels' Drawing 3, and it must have been clear to Morgan, in the latter part of 1879 or early in 1880, that Daniels' with Young acting under him under Morgan's Order 26 (printed on p. 149; and see Daniels' 38th Ans. p. 173), would speedily solve the great problem of rolling small wire rods with triumphant success. But Morgan had made two attempts to solve this problem, and both had been failures, and the solution of this problem would deprive Morgan and his son of a large annual income from the Salt Coating Process. It is submitted confidently that it was solely for these two reasons, viz.: failure of Morgan's tests in the spring and summer of 1879 and the danger of loss of income from the Salt Coating Process, together with Morgan's fear that Daniels' success where he (Morgan) had failed, might possibly alter their relations with the Washburn & Moen Company (for Daniels was then only second to Morgan, and his success in solving this great problem after Morgan had failed in solving it, would go far to make Daniels first and Morgan second), fully account for Morgan's shelving the whole question of small wire-rod rolling early in 1880, and there is no doubt that the Washburn & Moen Company would have produced small wire rods by the invention in controversy as early as the spring of 1880, had not Morgan then known that Daniels was the inventor of the invention in controversy, and had not Morgan and his son been in receipt of heavy royalties under the Salt Coating Process. Morgan, in fact, admits in his first preliminary statement that he did not finish the construction of the reels from Daniels' Drawing 3 early in 1880 "on account of another invention," and this other invention was the Salt Coating Process, and it was not until

the Salt Coating Process was thrown out in "the year 1885, that the requirements of business called for the reel that" Daniels "had invented in 1878." (This quotation is from Morgan's preliminary statement, substituting Daniels for Morgan).

In the argument on behalf of Morgan, filed before the Examiner of Interferences, it is said that the reel constructed and tested in 1879 was unsuccessful, and afterwards taken to pieces; but it appears conclusively from the testimony of Daniels, Young, and Morgan that this reel was successful as to everything but mere details of construction; that the defects in details of construction were entirely remedied, as shown in Exhibit Daniels' Drawing 3; and that had it not been for Morgan's pecuniary interest in Salt Coating, the invention would have been reduced to practice early in 1880; and that Morgan is solely responsible for its not having been reduced to practice at that time.

On page 3 of that argument it is asserted that "the 1879 reel was abandoned by its makers, and ended in failure, and was not taken up again by any one for a period of six years;" and it is argued from this baseless assertion that the field was still open for any one to engage this problem in spite of all that was done in '79. The answer is that the field was not open to any one who had full knowledge of Daniels' Drawings 1, 2, and 3, and of the reel built in 1879, for the simple reason that nobody with full knowledge of these drawings and that reel could afterwards make the invention in controversy.

On page 4 there is a paragraph headed, "Morgan's present attitude and his real adversary"; but when the testimony of Lambert was taken, Morgan was superintendent of the Washburn & Moen Company, and then had full "control and influence over" the employees of that company.

Exhibit Daniels' Drawing 3 was made and the work of correcting the defects in details of construction in the '79 reels was prosecuted until Morgan became alarmed at the prospect of success and the consequent danger of his revenue from Salt Coating and his standing as the chief mechanician of the Washburn & Moen Works, and prevented the completion of the alterations in the '79 reel early in 1880. But "the Drawings (Exhibit Daniels' Drawing 3 and the detailed drawings which went with it) were put into the hands of pattern-makers and mechanics, and from them patterns and castings

were made and partially finished in the machine-shop with the view to apply them to the reel built from Exhibit Daniels' Drawing 2" (1879 reels) (See Daniels, pp. 14–17–20, and Young, pp. 38–41). Afterwards, in '85, and during Morgan's absence, Daniels and Young, acting under Order No. 1103 (p. 62), commenced work on the reels of '79 as modified by Exhibit Daniels' 3, and would have completed the alterations so as to get the '79 automatic reels ready for use in about three weeks (Young's 13th Ans., p. 39) had it not been for Morgan's return, who for the second time stopped the completion of these alterations of the '79 reels, and for the second time delayed the Washburn & Moen Manufacturing Company in the practical production of small wire rods. (Young's 24th Ans., p. 40.) The truth is, that Morgan, early in 1880, prevented the practical production of small wire rods, because of his jealousy of Daniels and his pecuniary interest in Salt Coating; and, again in 1885, repeated his offence, the total delay being upwards of six years.

SUMMARY.

Unless the testimony of Lambert and Fowler be disregarded, Daniels' date is July, 1878; and, giving weight to the testimony of Stover, Morgan's date is October, 1878.

But the invention of Daniels in July, 1878, differs widely from the invention (?) of Morgan in October, 1878; for in one there is "a rod-coiling receptacle," and a spider or lifting plate with their shafts arranged as described in Daniels claims; while in the other there is a *traction* reel with a *single* row of spokes, and a device for picking up the first end of the hot rod and connecting it with the reel; that is to say, in Daniels' invention there is "a rod-coiling receptacle, or reel for receiving and laying in coils the rod as it is delivered from the rolls" (as Daniels' claim is construed by the Patent office), while in Morgan's invention there is "a reel upon which the rod *could be wound* directly upon coming from the rolls." (Decision of Examiner-in-Chief, p. 235.) The contest is as to the first of these; for the second is practically worthless; while it is difficult to overestimate the value of the first.

Daniels did all that was possible, in view of his subordinate position, to put the first into daily use as early as 1880; but Morgan,

who had absolute control of the whole matter delayed the practical use of the first until 1886.

THE DECISION OF MR. COMMISSIONER HALL.

The decision lays down the proposition that "it is immaterial . . . whether the reel has two sets of arms or has a peripheral rim;" that is, whether the *annular space* for receiving and laying in coils the rod as it is delivered from the rolls is bounded by two concentric circles of arms or fingers, or by a rim and an inner circle of fingers concentric with the rim. This is undoubtedly true; but in the next paragraph the Commissioner makes it clear that he did not regard the *annular space* as at all material; for he speaks of reels having ONE set of arms, that is, reels without an annular space for receiving the rod and laying it in coils, and treats this sort of reel as in all respects the same as reels *with* that annular space.

While it is clear that Mr. Commissioner Hall differed from the Examiners-in-Chief, there is nothing in his decision which tends to show that he at all appreciated the vital differences between a *traction* reel, with one set of arms, and without an annular space for receiving the rod and laying it in coils, and a real with this annular space. Hence his misapprehension of Stover's testimony; for he decides in terms that Stover testified that "Morgan showed him two models of automatic reels, which were afterwards patented to Morgan; patents Nos. 220,300 and 224,941," p. 241. While the fact is that Stover refused to testify as to the reel with the annular space shown in patent No. 224,941.

Mr. Commissioner Hall disregards the testimony of Lambert and Fowler. His reasons are given on pp. 239–240. It is submitted that they compare unfavorably with the reasons given by the Examiners-in-Chief for giving full credence to these two witnesses, on pp. 11 and 12.

THE DECISION OF MR. COMMISSIONER MITCHELL.

This decision is not upon the merits, but goes merely to the question whether there was, or was not, "evidence in any form upon both sides," which, "if his [Mr. Commissioner Hall's] judgment of its weight was warranted, justified" his conclusions.

But in this Court the inquiry manifestly is not whether any of

the previous decisions are right or wrong; but whether on all the evidence Daniels is the original and first inventor of the combinations claimed by him in his original 7th, 8th, 9th, 10th, 14th, and 15th claims.

Morgan has no evidence, save his own uncorroborated oath, that he ever invented either of these combinations, if a reel with an annular space for receiving the hot rod and laying it in coils be one of the elements. And it is most confidently submitted that it is a gross wrong to Daniels, as well as to Lambert and Fowler, to disregard their statements under oath for the wholly insufficient reasons given in two of the decisions.

THE LAW ASSOCIATION
—OF—
PHILADELPHIA.